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Thoughts from the Profession.

NON-COHESIVE HALF-CYLINDER AND LOOP FILLING.

[Read before the New York Odontological Society.]

GENTLEMEN: I am impressed with the importance of non-cohesive foil as a filling material.

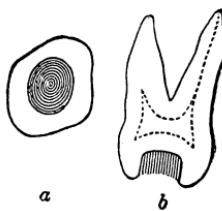
I have been permitted, through the kindness of Dr. Lord, to examine many such fillings made by him, which are perfect to-day after thirty-five years' service.

Non-cohesive foil may be used in such masses that the walls of a cavity are spared the danger of direct disintegration by the plugging instrument, while the slipping of the layers of gold on one another permits their proximation to the wall of the cavity with the least expenditure of force.

In physics, absolute contact between two bodies, or even between atoms composing them, is denied, and there is no absolute proof to the contrary. Fillings in teeth arrest decay in proportion as they approach perfect contact with the wall of the cavity.

A round hole with sound and parallel walls would be perfectly filled if it contained a cylinder of gold, the outer layer of which was in contact with the wall, and each layer of gold was in contact with its neighbor to the center of the cylinder. This is an impossible result. But imagine such a filling to have been made (Fig. 1, *a*), and a vertical section made through the cavity and filling, there would be formed two perfect compound fillings (Fig. 1, *b*), with each layer of gold placed vertically to the exposed surface of the filling, and each layer of gold would be parallel with the walls of the cavity. It is as if the covers of a book represented the walls

FIG. 1.



of a compound cavity, and the leaves the layers of gold composing the filling; you may trim the corners as you like, and there will be no peeling off of the gold, for each layer is vertical to the surface of the filling. This last condition may be practically realized; but before detailing the method it may be well to examine old methods, and by their defects illustrate in advance some of the advantages of half-cylinder and loop filling.

Wedging is the essential principle of non-cohesive foil work, whether of tin or gold. In non-cohesive work the foil is usually employed in the three following forms: 1st, cylinders; 2nd, ropes; 3d, folds. Pellets are only short pieces of ropes or folds.

One or more of these irregular masses are engaged at a portion of the wall, and others are wedged between or against those in place and folded in and out of the cavity till it is full, then the bulging portion is condensed toward the cavity. Now, the whole surface is made up of crimps and folds; sometimes the layers in the folds run parallel and sometimes vertical to the surface, and wherever parallel, flake or scale off by wear, leaving a rough surface, and often exposing a portion of the cavity wall. Because of the flexibility of non-cohesive foil, the cavity walls may be tolerably well proximated by it, if considerable force be used, even if the foil be corrugated and uneven, and not in layers parallel with the wall. But success would be more certain if the layers were smooth and parallel with the walls and with one another, thus insuring greater density of the filling by the lateral wedging. If completed in this manner and simply trimmed to the edges of the cavity, a frosted surface would be exhibited, consisting only of the ends of layers of gold, with no folds to peel off and render the work unsightly.

When folds are used and doubled in and out of the cavity, perfect lateral condensation is rendered difficult by the fold, which prevents the free sliding of one layer on the other, making it work stiffly and producing a filling of unequal density. The surface of such a filling would be much like one in which ropes had been used.

Cylinders are mostly made by rolling folds of foil, and their condensation and adaptation is more difficult and imperfect than when simple folds are used. A cylinder filling of regular density is almost an impossibility. The later manufactured cylinders are made of single layers, not folded, and so are capable of better adaptation of the layers on one another and against the cavity walls. This is true if the cylinder is made of smooth, non-cohesive foil, and if the outside layer is not tampered with by heating and thus made cohesive to prevent its unrolling during transportation; but

the fact is, most cylinders, supplied ready-made, are of crimped or corrugated foils, loosely rolled, and really nothing but rolled pellets and not adapted to cylinder work.

The wedging principle made use of in all non-cohesive work, and especially the use of foil cylinders, is well illustrated by the familiar example of cigars in a tumbler, with the row outside and the others wedged into the center. But the example also well illustrates the defects of cylinder work, for the wall is well touched only by the thickest portion of each cigar, and between each is a somewhat triangular space.

In cylinder work, the density is much less at some points than at others, and often portions of the wall are so imperfectly approached as to constitute a defect, and assure a recurrence of decay. These defects were long ago occasionally noticed, even where

FIG. 2.



the usual care had been exercised, and it was with the hope of securing greater scientific accuracy that, seven years ago, I conceived and utilized the present plan.

Dense cylinders of smooth, non-cohesive foil are cut longitudinally, and the half-cylinders thus formed are flattened against the cavity wall (Fig. 2, *a* and *b*).

A condensed *whole cylinder* would give an ovoid mass (Fig. 2, *a'*), which would clearly not be adapted to fill a concavity. Such masses would have cracks and fissures between one another, or at the walls, and a perfect stopping would be an accident rather than a certainty. But a half-cylinder, when condensed, would form a crescent (Fig. 2, *b'*) adapted to the wall, and leaving the general form of the cavity as before its introduction. The inline of the cavity being unchanged by the introduction of the first half-cylinder, each edge of which consists of but a single layer of foil, no interstices are left by the addition of other half-cylinders, for each one shingles over the free edges of the previous layer. In this manner perfect proximation to the wall is secured, leaving no corners or fissures.

The half-cylinder does not possess the tendency, always exhibited by the whole cylinder, of curling up and drawing away from the wall at one point when pressure is applied at another. The shingling of layers, one against another, should be continued around the cavity till it is full, care being taken that a concave surface

is always left for the succeeding layer of gold, and that each layer be smooth and free from folds, so as not to curl up. This disposition of the gold layers is most favorable to thorough lateral condensation against the cavity walls, and the production of a filling of regular and sufficient density to resist wear without flaking.

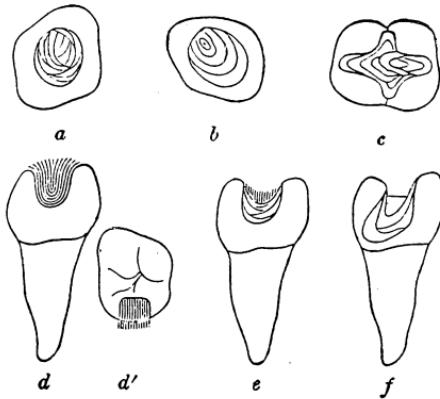
FIG. 3.



For rapidity and accuracy I have found this method of filling simple cavities to excel all others I have tried.

Instead of half-cylinders, what is perhaps still more applicable in many cases, is one-half of an ovoid mass, so rolled as to be thinner in one diameter (Fig. 3, *a* and *b*), thus furnishing a loop of gold. These loops are of especial service in oval cavities. I can

FIG. 4.



show contour fillings made in the proximate surfaces of the bicuspids, and extending into the crowns, that were made three and a half years ago, entirely of non-cohesive gold in the form of loops, perfect to-day, though subject to the constant strain of mastication.

I do not consider this method the best for contour work, but the fillings alluded to, and made for experimental tests, are instructive.

I consider, however, that for filling the first half or two-thirds of compound cavities beginning on the proximate surfaces, this method possesses great advantages; accurate adaptation to the cervical wall and to the borders of the cavity is assured, with the least danger of subsequent failure at those points. The remaining

one-third or one-half of the cavity, including the point of contact and the grinding surface, had better be of cohesive gold, anchored independently of the non-cohesive layer (Fig. 4, *e* and *f*).

I wish it to be distinctly understood that I consider this only *a* method, and not *the* method of filling teeth; yet it seems to be the most scientific method of using non-cohesive foils.

A certain depth of cavity is essential for non-cohesive work, and, where disease has not already furnished the necessary depth, we shall usually do better to respect tooth substance and use cohesive gold, if gold is indicated.

During the filling of a cavity with soft, non-cohesive gold, portions are sometimes annealed, thus rendering them measurably cohesive, and these are so entangled and wedged between the masses of soft foil as to be retained where no great strength is required. A surface entirely of cohesive gold may thus be secured. I sometimes finish soft gold fillings in the grinding surfaces with cohesive foil. In very frail teeth, a cohesive surface may be employed with advantage by letting it extend over some edges, while at the same time it prevents the force of articulating teeth from so spreading the plug as to endanger frail walls. However, in a general way, I am coming more and more to think that fillings exposed to the friction of mastication—*i. e.*, those occupying the grinding surfaces—are more in harmony with the functional requirements of the teeth when made entirely of non-cohesive gold foil. Such fillings do not produce the uncomfortable sensation of hardness and rigidity so commonly experienced with cohesive work, and more marked still with amalgam. They also lack the stony hardness and gritty brittleness of cements; neither do they produce the dragging, leaden sensation of tin, or the leathery feel of gutta-percha.

In making the half-cylinders, I always employ Williams' cylinders, rolled as first suggested by Dr. Bogue. These are the only cylinders of which I have knowledge, that are fit to use by this method. These, as now made, are tightly rolled No. 4 smooth, non-cohesive gold into sizes 5, 10, 15, 20, and 25, and of lengths 1, $1\frac{1}{2}$ millimetres, $\frac{5}{8}$, $\frac{3}{2}$, $\frac{1}{8}$, and $\frac{1}{8}$ inches. These cylinders are designated Style B.

Nos. 5 and 10, length $\frac{3}{2}$ and $\frac{1}{8}$, are the most useful sizes for small cavities. For regular cylinder filling I believe these cylinders are too hard, but their density is exactly what is wanted when cut in two and used as half-cylinders or as loops.

I have failed to induce manufacturers to furnish the half-cylinders, because the layers of gold fall apart when cut open, and, if sufficient heat is employed to prevent this, the gold is rendered so

cohesive as to be unfit for use. I have been compelled to cut each cylinder as I use it. Machine-cut cylinders would be much better.

One form of loop I more often use than the half-cylinder. Instead of cutting entirely through the cylinder, a cut is made with a sharp lancet from the circumference to the center, as it is held between the thumb and finger, and the cylinder is one-half cut through, thus permitting every layer of gold to be opened and flattened against the cavity wall.

Fig. 2, *c*, is a cylinder, and Fig. 3, *c*, an ovoid, cut in this manner.

Figs. 2, *d*, and 3, *d*, show the free ends of the layers as they should be opened out after the cutting, by a dextrous use of the lancet blade.

Fig. 4 represents various plans of disposing the loops in filling cavities; *a*, *b*, and *c* in simple cavities in crowns, and *d* and *d*¹ an entire compound filling, side and end view; *e* and *f* the lower one-half and entire lining of a compound cavity, the remainder to be filled with cohesive gold. The necessary density should be secured by lateral condensation, and the projecting gold should be cut off.

At the bottom of a cavity I prefer the end of the half-cylinder to rest against a thin layer of gold.

If I may be permitted to announce a suspicion, absolute proof of which I have not, I would suggest the possibility that capillarity is the force which has largely to do with the success or failure of dental operations. I can conceive that capillary creeping of fluids between layers of gold arranged concentrically, as described above, would tend to constantly proximate the gold to the walls of the cavity; and, as dentine is an absorbent, the moisture in any possible space between the filling and the tooth would be thereby diminished, thus permitting the pressure of the inner layers of gold to force the outer layer against the cavity wall.

This view may not only be a partial explanation of how porous fillings preserve teeth, but it may explain the rapid decay under a leaky cohesive gold filling, for capillarity in such cases only acts to the detriment of the tooth—*i. e.*, not tending to tighten the stopping, which has a rigid, unchangeable form.

Isaac B. Davenport, M.D., M.D.S., Paris, France.

Young man, bear in mind :

A thoughtful dentist will be progressive.

A progressive dentist will be increasingly successful.

A successful dentist will be able to command prices and a class of work that will require much less labor to bring an honorable competence.

TREATING A DISEASED ANTRUM.

Discussion in the Chicago Dental Society.

Dr. T. W. Brophy urges the necessity of thorough antiseptic cleanliness from the beginning to the end, without which it is almost impossible to cure disease of the antrum. We often find bone septum in the antrum separating the cavity into various cavities. It is sometimes difficult to make a diagnosis and to treat these cases well without breaking down the bone septum which separates the cavity into different parts. For instance, an operator may diagnose, as he thinks, disease of the antrum either by the presence of serous fluid or pus in the antral cavity. He may open the cavity and find it apparently in a healthy condition, and yet everything indicates he has an abscess. Further exploration will develop this anatomical peculiarity which is overlooked, the presence of the bone septum separating the cavity into two or three parts. I have seen cases where there were as many as eight distinct cavities formed, where there were little cavities running out into the malar process, distinctly formed, and separated from each other, so that, if fluid formed in one, we might make several explorations before coming in contact with it.

Drainage tubes are not generally necessary. If a large opening be made, which is the proper thing to do, making it as large as possible so as to introduce even the end of the finger, such an opening would give good drainage generally. The drainage tube must be just right, it must be neither too long nor too short. How can we determine the proper length? If an operator takes a silver probe and bends its end so as to form a right angle, then introduce it into the antrum, he may hook it on the floor of the antrum, and by that means measure the distance between the floor of the antrum and the masticating surfaces of the teeth, thus indicating the length of the tube. He may then take platina and make a tube the right length. He should make a band in the manner we would proceed to make a band for a crown, and fit it to the tooth in close proximity to the opening or antral tube.

He can then, with molding compound, take an impression of the tube, and the band around the tooth, being careful to hold the tube where it ought to be. In taking that impression he removes the tube and also the band from the tooth, and makes a plaster cast surrounding them. He takes the cast to the laboratory, puts platina between the tube and band, and solders the two together, after which he adjusts the tube to the antrum, cementing the band to the tooth. He can drain the cavity at the most dependent part, which is at its

floor. He has thus continuous drainage, which is the essential feature of the treatment of antral disease. When the patient is taking his food he may plug the end with a little stopper, and thus prevent the introduction of food into the antrum. After meals he takes out the plug and gets continuous drainage. It seems to me this opening might be plugged with gauze, wax or anything else. Wax is clean, and I would not hesitate to use it. It will not absorb anything. It is often convenient about the mouth where I want to secure a wide opening, and to aid nature in filling in the cavity at its base with granulations; as, for instance, where we have necrosis, or carious bone. After the removal of the diseased bone, the wax may be introduced when the cavity has been antiseptically cleansed, and, by shaving off a little of the wax, from time to time, the granulations will fill the cavity and the disease be cured.

Irrigation is essential; and after this, I think one of the most valuable means of successful treatment is to make use of insufflations of powders, and there is nothing that serves me better than powdered boracic acid. This is my favorite remedy in these cases. An application that is especially desirable in all chronic inflammations of the mucous surface, attended with a low form of vitality and suppuration, is a solution of nitrate of silver in about one part to five thousand, enough to stimulate and bring about a healthy condition of the parts. Here we have a surface that is secreting pus. We first open the antrum and get rid of as much pus as we can by draining it, then we wash the cavity with some warm carbolized water, or any other weak solution, but do not use peroxide of hydrogen at first.

I saw a case, a day or two ago, where peroxide of hydrogen was injected in such a cavity as we are speaking about. The patient called on one of our practitioners, and he found what he supposed was a chronic abscess where a tooth had been extracted. He filled a rubber syringe with peroxide of hydrogen and carried it up into the socket of a bicuspid tooth, and let the fluid go. The patient told me that he thought he was going to lose his head. I said, "What do you mean?" "I really thought my head would burst." The peroxide of hydrogen entered the antral cavity which was half filled with pus, and you know what the result would be in such a case. The dentist did not observe the precaution of thoroughly irrigating the cavity with carbolized water or even warm water. He should have cleaned out the greater quantity of the pus, and then he could have made use of the peroxide of hydrogen and removed the little remnants on the mucous wall which the carbolized water would not remove. He would then have the cavity in

shape to use boracic acid or whatever he wished. I would put boracic acid crystals in there and let them lie so as to get the prolonged action of the antiseptic. The crystals would dissolve slowly and would serve our purposes better than any fluid.

Usually, if we have teeth in these cases, I would make an opening large enough to secure drainage without a tube. I had an instance a little while ago in which there were no teeth; the gentleman who was treating the case made a tube and put it in a rubber plate, and that was a perpetual inconvenience to the patient, the movement of the plate, which always occurs to some extent, kept up irritation of the surrounding tissues. I would do it in this way: I take a large bur—I have some made for the purpose about four or five times as large as the largest burs used for excavating the cavities in teeth—and make an opening as large as my finger. By this means I secure continuous drainage, and the antrum is soon cured. This tube fixed to the plate is objectionable, because it causes more irritation than the patient can endure. A patient may wear a plate without much trouble, and the secretions will find their way down and out. I do not think it is advisable ever to put a tube in a plate where the teeth are all out, as tubes thus attached are certain to produce much inflammation of the surrounding tissues.

Dr. Louis Ottofy: If the fluid you have injected comes out from the opening through the nostrils, would that be a sufficient indication that the antrum has been injected?

Dr. Brophy: Generally it would. The opening between the antrum and the nose is situated almost at the summit of the antrum near the orbital plate. If you succeed in carrying the fluid up gently, you can irrigate the antral cavity.

I use a large syringe for this purpose. The syringe I use holds about four ounces of fluid. One of the important points in irrigation of the antrum is to use a large quantity of fluid, keeping the stream constantly running and thus washing the cavity. If you keep the stream flowing gently, it irrigates the cavity thoroughly and rids it of the fluids that may be there. I have a friend who endeavors to treat these antral diseases, where the teeth are present, by breaking down the naso-antral wall. I think this practice is objectionable. I have seen instances where there were thick incrustations of the nasal mucus in the antrum, and the incrustations formed there will keep up the inflammation and rather aggravate the condition. I would rather make the operation of Christopher Heath, which is also objectionable, that is to make an opening through the canine fossa. If we take a barrel, filled with fluid, put

it on its end, and then take the plug out of the bunghole, it will drain the barrel down as far as the bunghole, but will not empty it. This is what occurs when we open the antrum at any other place than its base. Ninety per cent. of the cases of antral diseases are due to abscesses of the teeth, and, if we succeed in removing the pus which finds its way into the antrum from alveolar abscesses and keeping the cavity antiseptically clean, we can speedily cure the antral disease. The pus from alveolar abscesses, making its way into the antrum, establishes inflammation of the mucous membrane of the antrum; consequently disease of the antrum is a secondary condition. First we have abscess with all the preceding pathological changes, and then the antrum becomes involved to an extent which may lead to extensive caries, or necrosis of the bones which form the antral wall. Should the bones become diseased, treatment for the removal of the dead tissue must be employed.

I have been a close observer of the treatment of a friend of mine, who has a great many cases of diseases of the nose and air passages, and it seems to me that the mucus from the Schneiderian membrane accumulates in the cavity, and the method is, in my opinion, objectionable, because of the incrustations formed therein. I do not see how they can accomplish as perfect drainage by the means outlined as by the method I have mentioned—opening at the base. Let us consider for a moment the structure of the antrum. For instance, we have at about the position of the first molar the most dependent part. I am not an artist, consequently I cannot make a drawing which would illustrate what I desire. The cavity is in the form of a pyramid, with the base toward the nose and the apex toward the malar process, and then dropping down so as to form something of a V-shape with the sharp angle of the V downward. You get that usually about the position of the first molar, and in cases where the teeth are responsible for the trouble, and owing to the fact that the first molars are the first to decay largely, in the greater per cent. of cases the molar is responsible for the antral disease, and therefore it is the one which we would naturally select to remove to secure the best drainage of the antral cavity. By removing the tooth, increasing the size of the opening of the roots, we can introduce a large tube and secure good drainage. I regard it as impossible to secure efficient drainage at the nasal orifice, or Schneiderian membrane. I regard the opening of the alveolar processes far more efficient than the nasal opening; besides, it gives the operator easier access to the antrum to treat it. It seems the use of warm air, after irrigating the cavity, would

be advantageous before making use of powders. It has been my custom, where I am in doubt, to put the patient at night on the affected side, then direct him, if possible, to keep that position till morning, and suddenly turn to the healthy side. If the naso-antral opening be not closed, the fluid will be evacuated into the nasal passages, and it will pass into the pharynx when the fluid escapes, unless the patient leans his head forward. I can generally make a diagnosis by getting the patient to follow directions without the use of an exploring needle.

Dr. G. V. Black : I have listened to this with interest all the way. I have had considerable observation and experience in diseases of the antrum. Antral troubles are of three sorts : First, the most frequent are those derived from tooth troubles ; second, engorgements that come from irritations of the mucous membrane from cold, and various causes ; third, tumors, or diseases that happen to be located in this region, but not growing on account of the anatomical forms here. I have seen all of these varieties, and, of course, they will assume great variety of form. The last case I examined proved to be epithelioma, not originating within the antrum, however, but extending to the antrum. It was a rather singular case. It seems to have originated on the cheek and had penetrated the masseter muscle, causing ankylosis of the jaw ; and it was on this account that I was called to see the case. There was sufficient contraction of the muscles to close the mouth permanently. I found a large opening in the antrum in about the position of the wisdom tooth.

I have a patient now with a tube in the antrum. I put that tube in for the purpose of closing the opening, not to keep it open. The granulations which occur about the end of the tube that do not pass fully through, will affect the closure. I do not want continuous, but rather periodical drainage in these cases. I want it closed all the time, except when it is under my immediate observation. If it is to be opened at all, I want to be there. I do not want saliva to enter the cavity at all. The mucous membrane of the antrum is always affected if we allow saliva to pass in. It is infected through the nasal opening sometimes, but less extensively and injuriously than by the saliva. It is possible to keep the mucous membrane of the antrum free from suppuration for any length of time, provided we do not allow saliva to enter. Irritation by the saliva constitutes a very radical objection to the opening from the mouth in the treatment of the antrum, and, if I could find another point otherwise as good, I should prefer to use it and avoid opening from the mouth. An opening from the nasal passage is better

in some respects, though we, as dentists, might object to it. The mucous from the nostrils might give some trouble. It is perfectly justifiable for those who are skilled in the treatment of the nasal cavity to use this kind of an opening. During the day there would not be perfect drainage. I would not have continuous drainage, and it is easy to get drainage when you handle cases with this kind of an opening. When I introduce a tube I plug it, and open it only when I am handling the case. I find little difficulty in the treatment of the antrum. I have had one or two, it is true, that did not do well; that is, pus would recur though they might seem well for a considerable time. But these have been rare.

I have one on hand where I removed a polypus from the antrum, which seems to have grown from a little spicula of necrosed bone, left after the removal of a tooth. To remove the polypus, it was necessary to make a large opening, so that I could introduce my finger into the antrum, and there is trouble in getting it to close. I do not like the idea of making a large opening, for I have several times had difficulty in getting it to close. We are sometimes obliged to make a plastic operation for its closure.

In this last mentioned, in which I removed a mass of semi-soft material, filling the antrum and producing a great deal of pressure, there was never any pus after the operation, and never any foul smell. After the removal of the growth or diseased part, I irrigated the antral cavity with a weak emulsion of the oil of cassia in warm water. It is not necessary really to have more than a solution to effect thorough disinfection. I use a single tube with a large bulb as a syringe, often using three or four bulbfuls in an irrigation. Then, after draining, close the opening from the mouth. If you have not a tube in place, you can use a wax plug. This medication acts kindly on mucous membranes, much more so than it does on the skin. It is not so liable to blister the mucous membrane as it is to blister the skin. If the oil of cassia is used too vigorously, it is an irritant; but not so much so as some of the articles mentioned, and it seems to me it is a much more effective antiseptic than anything else we have used in such positions. It is much more effective in such positions than bichloride of mercury. Some of our German friends have condemned the oil of cassia without giving it anything like a fair trial in actual work.

Dr. J. G. Reid: I do not readily understand how saliva can enter the antrum on account of its situation, unless by capillary attraction.

Dr. Black: When you have a hole into the antrum from the mouth, the saliva will enter through it. A patient may take water

into his mouth and force it through the antrum and nostrils. Saliva will be forced in during the motions of mouth and tongue.

Dr. Brophy: Mr. President, may I add a word to what I have said on the subject of drainage tubes? These fellows, called microbes, do not all swim, some of them fly. They are everywhere present. While I recognize the fact that saliva is one of the most active ferments that we have, I also recognize the fact that if we have continuous drainage, though the saliva should go into the antrum, which is doubtful, clinical history of these cases teaches us that they will soon get well if properly drained and antiseptically cleansed. The mouth is rarely, if ever, filled with saliva, the condition is different from filling the mouth with water, and using it as a pump to carry water into the antrum. The patient does not fill his mouth with saliva and then pump it into the antrum. If the saliva enters the antrum and we have continuous drainage, it would not do any harm. Ulcers of the mouth heal under the saliva; they heal under the tongue where saliva is always present. I am not prepared to accept the statement that the antrum must be kept free from saliva in order to get well. I am not prepared to say that we are to exclude it to hasten the cure. I have taken out the whole floor of the antrum on many occasions for the removal of tumors and diseased bone, and the saliva has not poisoned the freshly exposed surface, nor in any way retarded the process of repair. Only a week or two ago I opened both sides of the antrum, and there was very little inflammation. It healed up. The spaces which are sometimes open are made by the removal of necrosed bone, and they heal up without trouble in the presence of saliva. If you get an opening large enough, and get drainage, the saliva does no harm.

Dr. G. V. Black: I am aware that the mucous membrane heals under the saliva. I have removed the floor of the antrum and found no difficulty in the healing process, and you will not where there is a continual washing of the parts with the saliva; but it is where the saliva is cooped up so that it will lodge and decompose that you have trouble, unless you keep the parts clean with a good antiseptic.

Dr. Brophy: The saliva is not cooped up in the antrum, because you have constant drainage.

Dr. Black: You have a little drainage tube to drain the part, but the hole is small and the antrum is large, you will have fermentation taking place in the antrum. When you put saliva into the cavity of a pulpless tooth what do you have? He who treats abscessed teeth without keeping saliva out knows he will get suppuration.

Dr. Brophy: When you use drainage you get a free flow of saliva.

Dr. Black: You will find that it is where the saliva does not flow freely that decomposition occurs, and there is where you get the trouble. The partial septi and irregularities of the antrum which prevent free flow, have been sufficiently described. I see these cases suppurating month after month—suppurating every day. The saliva and other foreign substances do not belong here, and they cause inflammation in such places much more certainly than ordinary mucus from the nostrils. We know saliva injected into rabbits is poisonous, and generally kills them. We know when we put human saliva in the tissues or in the cavities where it does not belong we get into trouble. At the Chicago College of Dental Surgery the students cut their fingers and applied court-plaster, and had suppurating fingers. If they had put a little cassia water on the plaster they would have avoided that, but they licked the plaster. They poisoned themselves by their own saliva. At one time a great many of these cases occurred in that school, and the suppurations ceased when they used an antiseptic to wet their plaster.

Dr. J. G. Reid: I would like to ask Dr. Black a question in regard to saliva. For instance, you have a dog, he cuts himself or is injured in some way. What does he do? He will lay down and lick that sore from morning till night till it gets well.

Dr. Black: Yes, he keeps licking at it all the time and by so doing prevents fermentation taking place. Suppuration is the breaking down of inflammatory products by the process of fermentation.

Dr. Brophy: We have to take into consideration the clinical history of these diseases. A patient comes to us with antral disease which he needs to have attended to. We know the first thing is to get the cavity drained. After we have secured drainage, emptied the cavity of its fermenting contents, we irrigate it, and apply our medicaments. My position on this subject is just this: If you plug a cavity, as one or two of the gentlemen have advocated to-night, so as to be sure that it is closed, you generally find that when it is opened you have considerable quantity of pus escaping at that time, and that pus, I contend, retained within the cavity is a great detriment to the tissues. Pus retards the healing of the tissues more than the saliva which might possibly get in the antrum, and I do not believe that saliva is likely to get in the antrum, except the patient makes a special effort to get it there. For that reason, I have followed both methods of treatment, *viz.*, keeping

it plugged and keeping it open, and I have found in following up the clinical history of the cases, we get better results, a more speedy cure, if we keep the cavity open so as to drain it continuously. We cannot get constant drainage for the reasons that have been stated. The patient is not upright more than two-thirds of his time ; the other third he is asleep. The antrum would certainly get well sooner by having it open at the floor. Plugging of the cavity will hold the secretions which are really irritating the tissues. I consider it far better to keep it open, even if a little saliva does get into it. Saliva on the mucous membrane produces less irritation than pent-up or retained or decomposing pus. The antrum should be irrigated two or three times a day to get a speedy cure. If it is plugged, you should remove the plug three or four times a day. If you do not do this, the patients go over Sundays and holidays and cannot get to the operator to have it treated. It is better to remove the pus than to have it in the antrum. The microbes are present there all the time from beginning to the end of treatment, and they will be there afterward. We have to keep in mind the fact that pus is forming and accumulating, and we must prevent it from remaining in contact with the diseased tissues, to restore the parts to health.

—*Review.*

TAKING AN IMPRESSION.—The necessary condition to be obtained in the adaptation of the denture to the tissues, is to have it embrace the alveolar ridge and extend backward on the palate to an extent that the entire periphery will impinge on and slightly displace lax soft tissue. This can only be definitely accomplished by securing an accurate impression of the surfaces of these lax soft tissues which calls for an impression of more of the surface of the mouth than it is ordinarily considered necessary to obtain.

It is important that the impression material should pass upward between the alveolar ridge and the lip and cheeks to the greatest extent possible, without putting the lip and cheeks on more than a slight tension. It must be carried accurately to the extreme height of the space at the outer side of the tuberosity, when such a space exists, and it should extend on the tissue posterior to the tuberosity for a short distance, and on the soft palate for a sufficient distance, to allow of locating on the model the line of attachment of the soft palate to the posterior margin of the hard palate.

—*W. B. Ames, Review.*

NEW OPERATION FOR CLOSURE OF CLEFT PALATE.

Remarks by Truman W. Brophy, and discussion, in American Association.

It is well known that clefts of the hard and of the soft palate are usually accompanied with harelip, single or double. Many times, in double harelip, we have extremely broad clefts of the hard palate. Usually the surgical procedure is to close the tissues of the lip and permit the cleft of the palate to remain unclosed, to be corrected later in life. This, in my opinion, is a mistake. I have held these views for some time, and in the last two or three years I have been attempting to make a radical operation for the closure of the hard palate. The closure of the soft palate has long been a perfectly well-known operation, and in some cases the hard palate has also been closed by surgical procedure. The time best adapted for the closure of the hard palate is in early infancy, from the first to the third or fifth week after birth, and it may be done by the proceeding which I shall describe. By the kindness of my friend, Dr. Jackson, we have on the board a sketch, so that I may more clearly show the mode of operation I am about to detail.

This operation should be performed as soon as the organs of the body are performing their functions normally. Ordinarily, very young children suffering from this deformity are extremely weak, and not able to submit to an operation. In this event, time should be allowed in which to gain strength. The palatal aspect of the superior maxillary bones represents the line of separation between the inter-maxillary bones and the maxillary bones proper. This suture fails to close in single harelip. To close the broad cleft of the hard palate and to secure an adaptation of the parts of the opposite side, we must resort to something more than external pressure. I am aware that Dr. Sayre, of New York, has operated by the use of the external apparatus with which to exert pressure on the sides of the face. In early infancy the bones are so soft and flexible that they may be easily bent, and in narrow clefts the edges may be proximated, but in a broad cleft it is impossible, by pressure on the cheeks, to get the edges in proximity to each other. Having pared the edges well, and removed not only the mucous membrane, but a layer of the bone, we then lift the cheeks—(there is an advantage to be derived in operating on the palate first, inasmuch as the large space in the lip gives us a great deal more room in which to operate)—introducing a drill, carrying it through the substance of the maxillary bone, so that it will pass through above the palatal plate; then beginning with the drill on the opposite side, carrying it through, so that we will have a small opening through from side to side. We

then carry the cheek well back, and pass the drill through in the same manner, so that it will pass above the palatal plate of the bone. Having done this, we introduce a wire, of good size and sufficient strength to serve our purpose, through the openings we have made, and through the substance of the bone anteriorly and posteriorly. Having done this, we make use of a lead button, perforated so we may lay it on the sides of the bone representing the buccal surface of the jaw. Introduce the wire through one of these openings. Now we set those wires up by twisting them together. We find that we do not exert sufficient pressure to bring the parts into contact; therefore we raise the cheeks high up, and with the knife we divide the mucous membrane just below the orbit, and divide the bone so as to separate it absolutely from the tissues above. This is done on either side. Having separated the maxillary bones from the tissues above, we have no trouble in twisting our wires and setting them up, and thus bringing the edges of the cleft bones in contact. By so doing we secure a perfect adaptation of the parts. The process of repair will go on, and we will get union of the bones on either side.

The question may be raised, What would be the effect on germs of the undeveloped teeth? That I do not know. I have one case far enough advanced, so that I think we can soon see what the effect will be. But it makes very little difference, even though the germs of several teeth are destroyed. What is that in comparison to the value of being relieved from that deformity, that most troublesome difficulty of defective articulation which so characterizes these clefts of the hard and the soft palate? Everything is in favor of the operation in early infancy. The parts are more easily manipulated; they more kindly unite; the operation can be made with less shock to the patient, inasmuch as the nervous system of the child is not so highly developed at that age as later. Besides, the child is, after the operation, better nourished. Another result of great importance is, when the child comes to an age that he may articulate, his articulation is correct, and he lives and moves and has his existence without being embarrassed through life with the deformity which characterizes cleft of the hard and soft palates.

DISCUSSION.

Dr. Marshall: I would like to ask Dr. Brophy wherein he claims that this operation is any better than that known as the sub-periosteal operation. It certainly is a much more serious one. He made the statement just now that the nervous system of a young child is not so highly organized as later in life. The fact is, and it

is recognized by all physiologists and by practitioners of medicine and surgery, that shock to a little child is much greater than to an older individual from the same operation, due to excessive nervous irritability. Serious operations are never recommended to be performed on little children. They are usually put off till after the first dentition for the same reason. It seems to me in a case of that kind such an extensive operation had better be postponed till after first dentition is completed, and then make the old operation, simply dividing the mucous membrane about midway between the edge of the cleft and the inner aspect of the teeth on both sides, not attempting to draw the bone together, pare the edges, lifting the periosteum and the mucous membrane from the bone, and suturing them together on the median line. In a great many cases there will be formation of new bone and the whole cleft filled up. That operation is much less serious than the one Dr. Brophy has indicated. I should expect an operation such as he has described made on a little child of that age would be almost certain death. There might be cases in which the child would survive. I think if he keeps a record of his cases he will find that the fatality will be very great. Another mode or operation would be to drill and split the bone midway between the edge of the cleft and alveolar process, and suture on the median line. It would be less of a shock to the child than would be this operation which Dr. Brophy has described. For my part, I cannot see how that is an improvement over the old methods.

Dr. Cravens: Dr. Brophy suggests the possibility of injuring the developing teeth in operating on a subject of the age of three weeks. The crowns of the deciduous teeth at that age are already formed, and the formation of the adult crowns has progressed so far that, I think, for such an operation to stop the growth of the teeth, the surgeon would have to begin a good deal earlier than three weeks after birth.

Dr. Patterson: I had thought it well settled in the dental profession that the operation for congenital cleft of the hard and soft palate has been for many years discouraged, for the reason that what we aim to get, the perfection of articulation, is never accomplished by that operation on account of the lack of soft tissue. It is thus impossible to close the opening between the mouth and the nose, which is necessary to perfect articulation. The operation does not increase the volume of soft tissue which is lacking. If it does not, articulation is not improved. The benefit in articulation obtained by a perfect surgical closure of the opening of the hard and soft palate while the shortness of the soft tissue remains, is

almost undistinguishable. Better in every way is the artificial obturator or soft velum.

Dr. Volck: I have in forty-one years of my practice operated on a great number of harelips. In fact, at one time I made that a specialty, and I have operated on hard palates of adults in the endeavor to close them. I think the bringing together of the hard palate in children in earlier life is a very serious operation, and I have witnessed two deaths from that treatment, which I attributed entirely to nervous shock. In the later operations which I performed, I have simply brought the forward part of the maxillary together, paring it so that it would have a good form, and at the same time prevent that very unpleasant opening into the forward part of the nose, which is so often the consequence of that operation. The operation on the soft palate is usually successful, so far as the articulation is concerned, as the curtain accommodates itself as the child grows, and the articulation in most cases is perfect. I do not give this as a speculation, but as positive experience. So far as the operation on the hard palate is concerned, I think the doctor's idea is extremely ingenious, but I doubt much whether any child would survive it.

Dr. Marshall: With regard to the closure of the soft palate, the statement has been made that it is never successful, so far as speech is concerned. I have made a good many of these operations, and I say positively that if properly performed, and there is a sufficient amount of soft tissue—you cannot make soft tissue—the operation is a success. I will give you an illustration of one, and a remarkable one of an Irish woman, forty-nine years old, who came to this country nine years ago for the express purpose of having an artificial velum made. She went to Boston and was in the hands of one of the very best mechanical dentists there, who made her an artificial palate. After wearing it three or four years she said she could see no change in her speech, and she finally drifted to Chicago. I conversed with her and tried to understand what she said, but could not until she wrote it out. I told her to take out her artificial velum and let me hear her talk without it. She did so, and I could distinguish no difference. I told her I thought she could be helped by an operation,—that there was soft tissue enough to make a good curtain. There was a complete cleft through hard and soft palates. She said she would submit to anything I recommended. I told her I could put her mouth in as good condition for speech and taking food as it was then, and she could throw her plate away. She consented to it, and if I had her here to-day you would have no difficulty in understanding every word she said. It

was a success. She does not talk perfectly, however, as that could not be expected. This is the way I performed the operation. I supposed at the time it was original, but I found afterwards in looking over the books it had been recommended fifty years ago. I operated by what is known as the sub-periostal method, and, when that was completed, I simply took my bistoury and cut through the soft palate on each side so as to loosen it thoroughly from its attachments at the sides. The result is that when she attempts to swallow liquids she can do so without regurgitation into the nose.

Dr. Volck: In operations on the soft palate of children, the separating of the soft palate from the maxillary bone on either side is absolutely necessary. My way of operating is this: To bring the edges entirely together is almost an impossibility, but by separating the velum slightly from the bone from the inside and splitting it, not entirely through, you can draw the flaps together in almost every instance.

Dr. Brophy: The remarks of Dr. Marshall as to shock caused by operations on young children I do not think well established by our knowledge of physiology. The works on physiology of our best authors show us that the young child is not so susceptible to nervous shock as one further advanced in life.

Our best knowledge of surgical operations is that based on clinical experience. I had seventeen cases of staphylorraphy in about five years, three of which were this operation, and in not a single instance has there been any marked inflammation following the operation. The child has apparently been as well nourished and has seemed to thrive as well as any other child. In verification of this I can exhibit patients on whom I have operated.

The statement made by Dr. Patterson is one that I should possibly have made myself in presenting the case, but for want of time I did not enter into all the details. The question is as to the lack of sufficient soft tissue. It is a fact, and it cannot be successfully contradicted, that the child having the cleft of the palate has, at birth, in nearly all instances, as much tissue forming the soft palate as any child that has a perfect palate. The only difference is that the surfaces of the soft palate are not united. What is the result of this non-union? If the child is permitted to remain as he is, these soft tissues are not put to use. It is not necessary for me to state the need of making use of all parts of the body to keep the body up and in a vigorous condition. The right arm of the blacksmith measures more than the left, because of its use. It is a fact that if the soft palate be closed in the young child it will develop, and there will be sufficient tissue to close the posterior nares and

thus secure perfect articulation. The reason why many of these operations on the soft palate fail is that the tissues are not properly brought together and not properly secured. The tissues must be brought together and retained in quiet contact. When the surfaces are proximated, they must be held together, and not allowed to slide back and forth during the act of speaking or crying, or whatever may occur in the use of the voice. That is where the mistake lies. Tissues cannot unite, unless they are kept in quiet contact. If the tissues are not united, if the soft palate of a child is permitted to grow without union, there is an atrophy of the parts for want of use, which is why the operations later in life have been a failure. It is absolutely necessary that there should be sufficient tissue to close the posterior nares, so as to secure perfect articulation. Later in life it cannot, with some exceptions, be done, because the tissue is atrophied. I am quite well satisfied that many patients are wearing artificial palates, who, had they been operated on in early life, would never have known the inconvenience of this mechanical contrivance, which is a kind of nightmare to them all through life. It is one of the most depressing things to be obliged to be tied down to some mechanical contrivance to get along through life.

Dr. Patterson: At what age would you recommend the operation?

Dr. Brophy: Some gentlemen have said we should wait till the teeth are erupted. Do not accept those statements, or put them in your note-books and practice them, till you have given them very careful consideration. What is the effect of waiting till the teeth are erupted before operating? The articulation is established, and you cannot make an operation here, bringing the entire maxillary bones together, without destroying that articulation or antagonism of the teeth. This operation when made early in infancy does not affect the articulation of the teeth to any very great extent. If the arch should be somewhat contracted, by means well known to every dentist of the present time, it may be easily expanded. This operation I have performed a great many times by cutting the hard palate and bringing it over, but I regard it as very inferior. I regard it as an operation that almost invariably produces more shock than the early operation. Later in life we have dense tissues, highly organized, with blood-vessels and nerves. We break through the tissues and tear loose the nerves, and produce a shock that would not be produced by carrying the soft parts together when they are almost in a gelatinous form.

FITTING A CAP OR A BAND TO A ROOT.

Remarks in First District Society of New York, reported by *Review*.

Dr. Charles J. Essig: The operation of fitting a cap or a ring to a root is very difficult. I have seen several roots that have been removed after bridges or crowns have been fastened to them, and I have rarely seen one where there has been precision in fitting the band. The form of the root is often very tapering, and in fitting a band under the gum we are apt to fail, through difficulty in determining its exact form, to obtain a perfect adaptation of the ferrule to the root. Where I have had the chance to prepare a root to my own liking, I spare as much of the tooth as possible, and do not go very far beyond the margin of the gum. Suppose we have a central tooth which is discolored or broken to such an extent that we find it necessary to crown it. How shall we prepare that root? Shall we cut it off in its entire circumference to the margin of the gum? I should cut the root off so as to save as much as possible of the lingual portion and beveling to a little above the margin of the gum on the outer or labial portion, so that the porcelain face may be carried under the gum to conceal the line of union. No gold should be visible in front. The cap I prefer is a partial cap.

There is another important point, the manner of measuring the root and fitting the cap. It seems to me that a plaster model would be much better to depend on than a piece of wood which is made hap-hazard, or a piece of wire fitted to the root. Measuring by wire coiled around the root is largely employed, but has never been satisfactory to me. After we have gotten such a model as plaster will give us, we certainly have a pretty good fac-simile of our case from which we may obtain very reliable measurement. The next step is to cut away the plaster model below the margin of the gum, so as to allow you to fit the cap. This model will be found to be pretty nearly like the root. If it is made of good plaster and thoroughly dried, then well saturated with thin sandaric varnish, and allowed to dry again, you will have a model that is hard enough to work on without injury; but precision in fitting the cap can, in many cases, only be obtained by fitting the band as well as you can, on your model; soldering it together, or making the ring first before you put the floor on, and then fitting it on the root itself. Force it up into the position that you want it in, and then see how it fits. Of course, it is well at the very beginning to make some preliminary preparation of the root. If you can determine that the edge of the root which is out of the gum has a

decidedly tapering form, this must be remedied before taking the impression.

There must be precision in fitting the cap and pin together. Without the cap, the pin sustains all the force. The force of mastication is thrown on the long axis of the tooth instead of on the socket, where it properly belongs, and there is danger of fracture of the root of the tooth; we have all doubtless met with such accidents. If the cap does not fit the root well, it is no reinforcement to the pin; so it becomes necessary, to make one serve the other, to have the cap fit accurately. Much of the work of preparing crowns may be done by the mechanical dentist, and this is a saving to both operator and patient. I do not like to make a laboratory of my office, and a method of procedure which obliges a dentist to go from the work-bench to the mouth of the patient will prove wearing and distasteful to both. The plaster model, on which most of the work can be accomplished, will save much time to the dentist and annoyance to the patient.

After the ring or ferrule has been so made, however, it may then be adjusted to the natural root. When the cap is fitted on the root, if it stands away from the sides, it can be burnished back; it cannot be adjusted to the root accurately at any other time. Then you can finish putting the floor on, and the cap is then ready for the reception of the tooth; but it would be better to try it once more in the mouth. Dr. Case remarked about the accuracy of the adjustment of the pin. The correct relation of the pin and cap is important. If the pin fits well and the cap stands away from the root, it will give no additional strength to the pin, and, when the force is thrown on it, it may bend or break, or the root may split.

I have found pure gold too ductile, so that even after we have fitted a cap to a tooth, with the object of making it reinforce the pin, it is quite possible that we may have a yielding of the soft gold. I much prefer one of the alloys of gold. Coin or standard gold affords greater strength and better results. Coin gold is very much stronger; it has a tenacity of 70 or 80, while pure gold has only about 20 or 25, and I therefore favor the use of coin gold. By taking proper precaution and giving every detail of the operation proper care, we can get a sufficient adjustment, without depending on the burnisher to make the cap fit the root.

Dr. F. Van Woert: It is very strange, nevertheless a fact, that bicuspids and molars take kindly to bands or ferrules, while the incisors and cuspids are the reverse, especially centrals. Therefore I never use a band crown on these teeth, unless absolutely necessary.

The only possible advantage of a band is to add strength to the crown and root, or, in other words, protect the root from fracture. This same object may be accomplished in a different manner without encroaching on the pericemental membrane, as follows:

In the preparation of a root, the face should be cut on a straight line from the center to the gum-margin on the labial surface, forming an incline; and from the center to palatinal gum-margin, forming a quarter-circle. Then drill, and fit the dowel into the root; after which bend a piece of pure gold the shape of the root as nearly as possible; trim to something like the contour of the circumference, after which place it on the end of the root, and drive the pin through it and to place. Now remove the whole, solder, and readjust, when the plate can be perfectly adapted to the ends of the root by a small pine stick and a gold plugging mallet. Now, by removing, you will find the outside margins of the root clearly defined on the under side of the plate, permitting you to follow accurately with the corundum wheel the exact shape of the root. After soldering the face to this floor, you have a crown possessing all the advantages of a band crown, and the great merit of not encroaching on the pericemental membrane.

I am surprised to learn that there are members of our profession who so enjoy labor that they attempt to finish bands after a crown has been set. They certainly cannot believe it possible to finish a band in this manner, anything like perfectly; in fact, I have great doubts as to whether it is possible to half accomplish this feat without permanent injury to the root. By all means, finish the band before setting the crown.

Roots should be conically shaped, so that when a band is driven on it will stretch to a close union at the edge. There are frequently small inequalities which it is better to burnish the band to than to attempt to cut away; but it is less difficult to burnish to one or two small defects of this kind than it is to the whole circumference of the root.

I do not believe it is better to work from a model. I prefer the natural root. As to the instruments used for trimming roots, I have never been able to secure one that would accomplish what corundum wheels and emery-paper discs will do. I prefer them to any steel instrument that I have ever seen.

This principle of crowning preserves very much more of the tooth-substance than any other I know of. The principle of the V and half-circle, or a combination of both, in the preparation of a root to receive a crown, is an old one; but I consider it one of the

best. I am opposed to the least sacrifice of tooth-substance where it can possibly be saved.

Respecting banding crowns, I have cut off the crowns of a badly-decayed superior left first bicuspid, shaped the root conically, finished and adjusted the band, applied the rubber-dam, filled the roots, and inserted a porcelain tip; the entire operation consuming thirty-eight minutes. The complication of any operation lessens the chance of its final success, and certainly adds very much to the discomfort of the patient and operator, to say nothing of its being less profitable to the dentist.

Dr. C. Frank Bliven: In constructing artificial crowns there are three things to be considered—strength, beauty and ease of repair.

Strength is the most essential quality. Take an incisor. You are all familiar with its anatomical construction, and the manner in which the enamel overlaps the dentine. The nearer we conform to these natural principles, the stronger the crown will be. In the selection of a material, I believe we have in porcelain the only material at the present day that answers the purpose. In preparing the borders, the more we cut the tooth away toward the apex, the weaker the crown; for instance, in the Richmond crown the force is applied in an oblique angle, making a fulcrum at the labial point of attachment, thereby having a tendency to lift the pivot from the root, as a tack or nail is drawn with a claw-hammer.

Dr. Van Woert's method, which he has just described, seems to me to be much more practical, because it brings the fulcrum nearest to the point of greatest resistance.

If a cap must be used, use the band itself to take the measurement, place it around the root with a ligature about it, draw it tight, cut and solder. This, to me, seems the most practical method. The making of an accurately fitting cap is one of the most difficult things we have to do.

But, with few exceptions, I find it unnecessary to make caps. The burnishing of a piece of pure gold onto a hickory stick, removing it and having it fit the root accurately as a cap should, is almost an impossibility.

Dr. Baker, of Boston, several years ago introduced a method which was a good one, if we do not object to the extra labor. He places a piece of thin copper about the root (tagger's tin is best for this purpose), ligates it to hold it securely in place, and forces plaster of Paris into the open end; after the plaster has set, it is removed, and fusible metal is poured into the end that was

about the root. This makes an excellent model on which to construct the cap.

The next point to consider is that of beauty. All methods where the band must show are undesirable. For this reason I strongly object to them, and I rarely find them necessary. There are other simpler and superior methods. Prepare the root like a truncated cone, concaving the labial surface; prepare a platina cornicopia, introduce the pivot at the apex, trimming the platina form so that it will extend slightly under the margin of the gum, and burnish to place. On this form construct an all porcelain crown similar to thickened enamel. For strength, beauty and ease of repair, this method, in my practice, has been prolific of the best results. This crown gives me a border at once strong, beautiful and non-irritating—one that is not approached by any other method with which I am familiar.

Dr. S. C. G. Watkins: This subject is one of great interest to all of us. Dr. Van Woert spoke of the fitting of bands, and the inference would be drawn from his remarks that it was a very common thing to see bands well fitted, and an uncommon thing to see poor work. It seems to me that the majority of bands are fitted miserably. We see much of careless, slovenly work in crown and bridge-work. Either men ought not to attempt it, or qualify themselves specially for it. Dr. Case refers to the cutting down of teeth only half-way, and leaving free surfaces which are easily cleansed. That, I think, is an excellent idea. When a sound molar, for instance, is trimmed for attaching a crown to it, Dr. Case's idea is to trim the tooth half way to its neck, so as to get a solid bearing. Then fit the cap on that, and burnish the gold band to make a close joint. It seems to me to be a more practical method than covering the entire tooth with the gold, and taking the chances of having an imperfectly fitting band under the edge of the gum.

I do not believe in banding in crown-work if it can be avoided. I think a tooth which is crowned without a band is sufficiently strong, and less liable to cause after-trouble, providing the root is good, and not cut away too much in its preparation.

The tendency in prosthetic dentistry is toward the use, wherever possible, of artificial substitutes which do not cover the roof of the mouth, as in bridge-work. Where the bridge-work is removable, the patient can keep it thoroughly cleansed. I have been experimenting with much satisfaction, doing away with the covering of the roof of the mouth in pieces containing from one to five or six teeth, by the use of a spring plate. Where, for instance, the second

bicuspid is badly decayed, with the first molar on the same side decayed on the two proximal surfaces, and the second molar also decayed on the anterior proximal surface, I have adopted the plan of cutting away the crown of the first molar, which gives perfect access to the cavities in the other two teeth, which are then filled and a crown placed on the tooth which was cut away. My idea is that the operation can be performed in less time, the fillings can be inserted more accurately, and the crown be a more certain protection for the first molar, than the large compound filling which would be necessary.

Why not feel the power of good habits, instead of the mighty force of evil habits? As habits settle and fix us in any course of action, good or bad, and makes it more and more easy to do it, and more and more difficult to avoid it, we find ourselves made stronger or weaker by the character of our habits. Therefore, if we would find it easy to do right, let us make the doing of it a habit, and if we would not have the doing of evil made a part of our very nature, let us avoid it. It becomes hard to do right when by giving ourselves up to dowrong evil becomes habitual.

A porcelain tip made from a plate-tooth, properly selected as to color, ground to fit the edge of the natural tooth in such manner as to give the proper outward appearance, a platina pin fitted to extend up into the roots and attached to the porcelain tips, the palatal surfaces filled in to proper contour with backing, and solder or porcelain body baked on them, the tooth cavities filled with gutta-percha, and the tips heated and pressed home have given me good satisfaction. This I feel to be a conservative operation much to be preferred to cutting off the whole crown down to the roots and crowning by any of the methods usually employed.

—*G. V. I. Brown, Review.*

RUSSIA'S PLATINA MINES.—Though Russia possesses almost inexhaustible mines of platinum, there are only two laboratories in the country which prepare the precious metal for commerce. The raw material is sent from the Parmian Government, where it is found, to St. Petersburg, and thence, for the most part, to England, where it is refined. During 1888 only 31 puds, or 1,085 pounds, were refined in Russia. The price of platinum went up between 1886 and 1890 from 3,000 to 12,000 roubles per pud, or from about 84 to 336 roubles a pound. In the sixties it was believed worthless by the gold miners in Siberia, who used it often as shot.

—*Ohio Journal.*

ARSENIC AND THE DENTAL PULP.

In April ITEMS appeared an article headed as above by Dr. W. H. N. Baker, of Miller, South Dakota. Dr. Baker is partially right and largely wrong. His point that strangulation would cause death of entire pulp, from the apical foramen to pulp chamber, is undoubtedly tenable; but he errs in stating that this is the only thing taught. Arsenic seldom acts by strangulation. In the tooth, as in any other organ, if the conditions are favorable for absorption, its effect on the sensory nerves is first stimulating, then depressing, and, if continued, paralyzing and fatal.

Very unfavorable conditions for this series of phenomena are the third and fourth stages of active inflammation, namely, dilatation of capillaries, with decreased blood flow and stasis. Inflammation and absorption are inversely proportional, for as inflammation increases absorption decreases. To explain why would necessitate a paper on inflammation.

If inflammation is present when arsenic is applied, either to the pulp, the skin, or the stomach, absorption is interdicted, and the drug exhibits its escharotic effect. In the stomach, if the dose be sufficiently large, great pain, vomiting and purging occur till death results. In the tooth-pulp the inflammation is increased at the point of application, and an eschar is formed without the drug being absorbed. This may, or may not, result in death of the pulp. In most of the cases it does, as the dental pulp usually resembles the dog in Mother Goose, who "when he died, he died all over."

This latter train of phenomena may occur in either the stomach, skin or pulp from too large a dose of arsenic stimulating the part to such an extent, *i. e.*, setting up such an inflammation that it defeats its own absorption and acts simply as an escharotic. This action of arsenious acid is the safeguard of the physician who uses the drug for its escharotic effect in certain carcinomas and epitheliomas. In these cases, immunity from toxic effect is dependent on using the drug boldly, and in such quantities as will result in death of the tissue before absorption can occur. This is also the action in some cases of arsenical poisoning by the stomach.

Arsenious acid in the majority of cases should produce but little pain in dentalizing the pulp. Occasionally a patient displays a marked idiosyncrasy for the drug, and the application results in violent inflammation. These cases should be carefully noted, in order that future applications to other teeth in that mouth may be reduced in quantity. If properly applied, and in a sufficiently

small quantity, the first stimulative effect should be so transient and mild as to produce but little pain, and the resultant absorption of the drug and death of the pulp should occur speedily and comfortably. That the combination of some analgesic with the arsenic will diminish the chances of severe pain goes without saying.

G. E. Hunt, Indianapolis.

THE LITTLE SUFFERERS.

There comes before me a little, puny, suffering child, three years old, to be treated for toothache, presumed to be in one of its molars, because that is the objective point of attack on the little sufferer after every meal. I examine the tooth and find it decayed through the enamel and sufficiently into the dentine to form a cavity where food may be held and exert some painful pressure on the pulp fibrils. But look further, look at the cuspids and incisors, every one of them girdled with decay, or the entire enamel dissolved away, presenting only stumps of dentine! What has happened? An inflammation of that portion of the gums immediately surrounding the teeth known as the *ligamentum dentium*, has generated lactic acid, which has flowed out over the entire surface of the tooth and dissolved the enamel. The loss of the enamel and the unsightly look of the teeth are of great concern to the mother. The physician looks at them with indifference and unconcern. Many a dentist will look at them with some feeling of regret and sympathy for the mother because of their unsightly appearance, but never look at them as sources of continued irritation and pain.

Is this enough? Is this the only concern? Look at the feeble child, its wasted form, its half nourished condition, its sunken eyes, its nervous expression, its fretful manner. How do you interpret it? This process of decay of the teeth has been progressing for a year or more, and by the solution of the enamel thousands of minute nerve fibrils of the pulp have been exposed and made every tooth a seat of pain. This prevented mastication, destroyed appetite, deranged the stomach and the intestinal tract, robbed the child of rest at night; and what might be expected but a puny, pale half-developed child. For crying the child got scoldings, slaps and Mrs. Winslow's soothing syrup, when it should have had nitrate of silver judiciously applied. The uncovering of so many fibrils of the pulp brought on the worst form of nervous irritation, which was distributed by reflex action to the tri-facial system and to the pharyngeal branches of the pneumogastric nerve,

and thus brought on the whole train of consequences. This case presents an object-lesson for physician and dentist.

Another little sufferer comes in. He has one tooth that is troubling him—only one. Look at him. He is five years old. He is crying, and the word *cry* is written in fixed lines about his eyes and over his brow, and written in the fashion of his mouth, he cries so constantly. His little fingers are white and slender, and his little wrists not larger than a man's thumb. What has wrought this dilapidation? The mother says he has been a sickly child for two years. The child is worse to-day because of the aching tooth. So says the mother. Do not stop the examination at the aching tooth, for every molar above and below is badly decayed and broken down. Three abscesses are pouring forth their poisonous pus to mingle with the saliva and pass into the stomach, and an ulcerating gum stretches from angle to angle of the jaw along the line of the teeth. This condition has been in progress about two years. Is not this the home and source of two years of sickness? The child has been feeding on pus—septic poison, microbes and all. Mastication has for two years been out of the question, and pain has incessantly gnawed at the very seat of life and health. Has the dentist done his duty when he has put a little creasote into that aching tooth? Has the family physician done his duty, if he has never examined the mouth of that child and studied the consequences of such a destructive and painful disease as here exhibited?

An operation on the mouth of this child was all that was required in restoring health and development. It was my duty, as a dentist, to look after the general health of the child as connected with and produced by the local disease in the mouth, and not attempt to satisfy myself and the mother by relieving present pain only.

—L. C. Ingersoll, in *Am. Journal.*

Quick gain is the cause of many young practitioners indulging in methods which may bring prompt returns in money, but which, at the same time, place them in the light of contempt in the eyes of their profession.

In after years it is easy to see how much better it is to have patience at the onstart, knowing that honest endeavor will win in the end, than to use illegitimate means, which bring a sweet taste of quick gain and with it a bitter after-taste which is almost everlasting.

—Theo. Stanley.

MELTED GOLD FILLINGS.

For example, we will take a patient for whom three large gold fillings are to be inserted; it will take at least three sittings, often more. Prepare the cavities only at the first sitting, take an impression of them (wax is as good as the other materials), place your temporary filling of wax or gutta-percha, and dismiss your patient. The difference is, you intend to make a perfect filling for these three teeth in your laboratory at your leisure, independent of saliva. Mix enough plaster with fine plumbago to hold the plumbago together, and set; oil the wax impression as for an ordinary plaster cast. While you are preparing the gold, place your mold to dry on the oil stove; use 22, fine gold. The mold can be made of the plaster and plumbago alone, but small flasks in the form of the ordinary molding is better. The plaster molds should be tied together with a narrow band of tin, or stove-pipe iron. Your three molds ready, and placed in convenient position, melt your gold in a small crucible, and pour quickly; it will not do as well to have two fillings in one mold, as one or the other is likely to be imperfect. If the mold is well made, the filling requires but little trimming. You now have three fillings ready. When the patient makes her appearance, you feel no dread of saliva; the first filling is freed from the tooth, the cavity cleansed of wax particles; you try the fit of your gold filling, and trim so it will enter the cavity readily. Test the articulation, and trim accordingly. Everything being ready, a single napkin is all that will be needed. Mix your oxyphosphate thin, that it may adhere to the walls of the cavity and the metal. Line the cavity with it, using but little, though enough to be pressed out. When you press in your solid gold filling, there will remain just enough to fill the imperfect adaptation of the gold, and this is what is most needed. All the fine pits and lines of the cavity are filled. Owing to the nice fit of the gold, there is but little cement exposed around the walls of the cavity to be acted on by secretions, and the action is not the same, owing to the presence of gold, which plays with zinc. It will endure as much as the tooth substance, unless too much is exposed, owing to a bad fit; in such a case, remove a little of the cement, and fill with foil, which is the work of but a few moments. In finishing the filling, do so from the center of the filling towards the surrounding walls, as it spreads the gold over the thin line of the cement. The antagonizing of the teeth will also spread the gold. Still there will be little danger of decomposition, as it is but a film, and preserves bone very well. Keep the tooth dry till the cement is well hardened. Whatever defect occurs to a filling of

this kind is from the exterior. Three gold fillings are inserted at one sitting, with but little trouble to your patient, and the satisfaction to the dentist that he has inserted solid gold filling that will stand the test of time. In incisors, bicuspids, or any of the front teeth where the cavity is arc-shaped and cutting edge is required, it will be safer to drill a small hole through that part of the filling where, when it comes in contact with the cavity of the tooth, a shallow hole can be drilled into the tooth of two or three threads that will not endanger it, or give the patient much pain; then tap the end of a gold wire the size of the hole in the filling, and screw it in gently. After the cement has hardened, cut it off and finish. Such a filling will stay, and stand to cut in molars. Where it would be deemed necessary, two screws can be inserted. Tin is as good as gold in some cases; it can be cast in the same manner, with little trouble, as it melts easily. The cavity of the tooth should be shaped so as to allow the impression to come out without drag on the wax. Time will be saved by this in the adjustment of the filling. Now we can place a solid gold filling in any tooth, in any part of the mouth, with less trouble, and a more permanent operation, than a small foil filling in the front teeth.

—*Oliver Martin, in Dominion Journal.*

[Glass or porcelain fillings can be molded and used in the same way. But whether metal or glass is used, would it not be well to leave undercutting the cavity till your mold is made, and then also groove a little in the side of your mold, to help retain it?—ED. ITEMS.]

We cannot separate ourselves from our work. Our patients will make their estimate of us and couple us with our work. To be well in repute, we must not only be skilful, but personally acceptable—even association with evil scores against us. Like the smoking parson, the drunken lawyer, and the licentious merchant, the dentist of bad character or bad habits will be shunned. He must have clean hands and a clean name to work for clean people.

Dentistry as an art has greatly advanced within the past fifteen years, but dentistry as a science has been too much occupied with the demonstration of theories in the laboratory and on paper to give the proper attention to practical physiology and pathology.

L. C. Ingersoll.

REPLANTING.

Two years ago I replanted an upper second bicuspid for a gentleman twenty-eight years of age, of good health and regular habits. It was badly broken down with fistulous opening on gum of two years standing. I extracted tooth, found root denuded and much corroded for three-sixteenths of an inch from apex. I rinsed the tooth in tepid water and wrapped in bibulous paper saturated with bichlor. sol. one to two thousand, so as to avoid touching with fingers. I cut off denuded portion of root; covered cut portion with cohesive gold carefully burnished, filled root canal and built up crown with amalgam. I then rimmed out socket through to pus sac with a large bur. Washed out with tepid water, followed by bichlo. sol., and pressed tooth to place. I made a splint by drying that and adjoining teeth, and pressing cement between them with the fingers, and covered this with varnish. I directed him to close his mouth and keep it closed for half an hour, and dismissed. He returned next day complaining that cement felt uncomfortable, so I removed it and found everything doing finely, little soreness, and that confined to gum margin. The occlusion was such that the tooth was supported nicely, so I used no further retaining fixture.

The tooth is still firm, gum healthy, and nothing to distinguish this from the other teeth. Patient reported there was no soreness after fourth day. I have replanted many teeth, but this was probably the worst case. Have had as yet no failures.

C. H. Stearns, Zumbrota, Minn.

On September 15th, 1886, I replanted an upper right lateral incisor for Miss R. T., of Matamoras, Mexico. The tooth is now firm and good, but as a little of the root was cut off, the tooth is a trifle shorter than the other lateral. I would like to know if copper amalgam has proved such a complete failure in the practice of any other dentist as in that of Dr. Steele. I have inserted a great many copper amalgam fillings within the last three years, and, I believe, it has done as good service as any other material would have done in the same class of teeth. For those teeth, however, I am now trying the nitrate of silver treatment, and hope for better results with other amalgams. *C. H. Thorn, Brownsville, Tex.*

LUDICROUS THINGS IN DENTISTRY.

Several years ago, a man appeared before my office, walked up and down several times, and then took the shortest cut for the kitchen; after assaulting the door in a terrific manner, on its being opened by the servant, asked if this was Dr. H——'s tooth factory.

One day, a colored man called on me, accompanied by his daughter, who wished to have a tooth extracted. On being taken in the operating room, the old man said: "Boss, I wants ye to gibe her some snikering gas, becase she is from de city, and mighty high-toned."

On going into my office, one morning, about nine o'clock, I found a lady patient waiting for me. After saying "Good-morn-ing," and asking what I could do for her, I was surprised to receive this answer: "Doctor, I want all of my upper teeth yanked out, and a new set of store teeth in, and I want to take the ten o'clock train home." On being told that it was impossible to do all that in so short a time, she was annoyed, and said: "I thought you always had new sets on hand."

Occasionally, patients come and ring me up about six o'clock in the morning. On going down, they tell me that they want some teeth filled, and thought they would get here before any one else, on the barber principle—"first come, first served."

Justin E. Harlan, West Chester, Pa.

THE VALUE OF A LINING VARNISH.

Few of the profession are familiar with the virtues of a lining varnish in filling teeth. For years I have been experimenting, and am convinced of its advantage. I have used it under all kinds of fillings with great satisfaction, both to the patient and myself. Thermal changes are often a great source of annoyance, which this overcomes. The coating is so thin that it is not noticeable, and yet it prevents any after annoyance even in the most sensitive tooth. After the cavity has been coated and the lining has hardened, the edge should be freed from all that is on them. Oxyphosphate should not be used for filling teeth with living pulps, without the protection of an intermediate not affected by phosphoric acid.

I am using a varnish that I think superior to those commonly used, which I hope to say more about hereafter.

S. E. Gilbert, Philadelphia.

CLICKING OF ARTIFICIAL TEETH—CAUSE AND REMEDY.

Clicking and rattling of full sets of artificial teeth, is caused by poor articulation, by ill-fitting plates and by the teeth being too long. In nearly all full sets, when first tried in mouth, the molars and bicuspid are found to be too long, and to bring the incisors near enough, the cusps are ground, making them flat and smooth with no indentations, thus allowing them to slide about. To prevent this, preserve the cusps or points unground, thus allowing them to interlock, and therefore less liable to "clatter." Another great benefit of this method is, that uneven surfaces coming together cut or divide food better. *A. A. Hazeltine, New Bedford, Mass.*

BRITISH JUDICIAL DICTA ON DRINK.

The Edinburgh Journal of Jurisprudence says: "Almost every crime has its origin directly or indirectly in drinking."—Judge Gurney.

"Ninety-nine cases out of every hundred are caused by drink."—Judge Erskine.

"If it were not for drink, you (jury) and I would have nothing to do."—Judge Pattison.

"If all men could be persuaded from the use of intoxicating drinks, the office of judge would be a sinecure."—Judge Alderson.

"Three-fourths of the cases of crime have their origin in public houses and beer shops."—Judge Wightman.

"Intemperance has destroyed large numbers of people, and will, at its present rate of increase, in time destroy the country itself."—Justice Grove.

"I can keep no terms with a vice that fills our jails and destroys the comfort of homes and the peace of families, and debases and brutalizes the people."—Chief Justice Coleridge.

—*Homeopathic News.*

A young lady, about fourteen years of age, had two small cavities filled in an upper central with gold, seven weeks ago. The tooth was a little loose and sensitive, but otherwise seemed in a good condition. This week the girl came in with the tooth in her hand. It had fallen out the previous evening without causing even bleeding of the gums. The socket was open, and without any evidence of violence or inflammation. Who will explain?

R. A. Luhr, Cleveland, Ohio.

[It was a temporary tooth.—ED. ITEMS.]

Our Translations from Russian, German and Spanish.

THE HISTORY OF THE MUTILATION OF TEETH.

By DR. E. MAGITOT, Member of the Medical Academy of Paris.

Motto: Every thing is good when it comes from the hand of the Creator, though it may become bad in the hands of men. Man likes monstrosities and deformities,—few things as nature has made it, not even man himself.

Through historical and prehistoric centuries man has been inflicting on himself wounds and mutilations.

This custom, which stamps distinctly the various steps of partial suicide of the individual, has for its motive: fashion, habit, vanity, generosity, mystical and religious ideas, perversion of the senses, etc.

To describe such a man in his limits and details, we would be obliged to begin with the most innocent practices, such as the dyeing of the hair, the use of cosmetics; then, as a transition stage, the tattooing, and then the mutilations of the face, the disfigurements and trepanation of the skulls, the wounding and amputations of limbs, and, lastly, the barbarous custom of mutilations of the sexual organs.

Several theories have appeared to solve this problem. We desire here to illustrate the various classes of teeth-mutilations:

I. MUTILATIONS OF TEETH THROUGH BREAKING.

This variety is met chiefly on the coasts of Africa, also on the Nile, the coasts of Mozambique and the Unya-Muesi. Outside of Africa, they can be found only on the west coast of New Guinea.

Alfred Marché, an African explorer, has witnessed this operation and has described it as follows:

“Usually, three persons, 20–25 years of age, are being operated simultaneously. The purpose of the operation is to remodel the incisors, and all the neighbors of those persons are witnessing it. A round piece of wood is placed in the mouth of the patient, which serves as a preserver.

“A knife is then placed to the point of the tooth, which is broken off by means of another piece of wood. This operation is thought to be very painful; still it is borne very patiently. If the patients make a grimace at each knock, the bystanders mock at them, laughing heartily. At the end of the operation, the operators retire, rejoicing that it is all over.”

When Marché inquired for the cause of this custom, they answered that the operation is being undergone, to make the eating easier. The same operation is performed by some tribes of the Upper Nile, the Niam-Niam, and also by the tribes of the Blue Nile.

On the eastern coast of Africa, this custom is found still among the Macuas, in the Mozambique mountains. All the negro tribes, between the extreme points of the eastern and western coasts of equatorial Africa, follow this practice of teeth-mutilation, though it differs in form.

II. MUTILATIONS THROUGH PULLING.

This method consists in removing the two central incisors. It is found in both hemispheres. According to Zarate, Garcilasso and Paw, it is customary in Peru since times immemorial, where it has been practiced on the revolutionary and conquered tribes, as a sign of slavery. In Africa, it is to be observed on the Congo, among the Hottentots, the Batoxas, on the coast of Mozambique, and the Unya-Muesi, where it coincides with the method of mutilation through breaking. This custom is found also on the Upper Nile and in the interior of Africa. A negro tribe, Ungora, in the north-eastern part of Albert-Nyanza, pulls the four lower incisors from the children of both sexes. The operation is done by means of a flat iron, which is worked by a lever.

In Australia, this custom is prevalent from the northern part of the Tasmanian coast and the land of the Arnhem to the western coast of the Carpentarian Gulf; it is found also in South Africa, among the New Gallas; but it is observed neither at Cape York nor any other point of the coast.

III. TEETH MUTILATIONS TROUGH FILING.

This kind of mutilation has for its exclusive centre the Malayan Archipelago, whence it has spread over the adjoining islands.

The filing of the teeth is a religious act with the Malays, which is celebrated with great festivities at the age of puberty, but this only by the Mohamedans. At first, the free edge of the incisors is lightly filed. Then, some operations are added, which are in accordance with the habits of the family or the caste of the one operated on, or selected by his individual taste.

In Java, the filing is done horizontally, by which the tooth's edge is diminished, and then flattened. The instrument used is a file or stone, or a piece of bamboo filled with sand.

The vertical filing is not practiced by the Mohamedan tribes of the Archipelago. If Meyer is to be relied on, it occurs only

among the wildest tribes, which want to have a terrible appearance or a resemblance to wild animals.

On the Nyas Island, this custom is very prevalent; from here come the skulls now at the Paris Museum, bearing such mutilations.

Every district of the Malayan territory possesses an operator who practices the filing of teeth as a specialty, and known as "Tukang pangur," *i. e.*, filer.

Interesting details about the custom are found in the important works of Meyer.

The Tukang pangur travels through the villages of his district with the cry, "pangur, pangur!" The young men and girls who desire to undergo the operation call him, or find him in his dwelling place. They show him a sample, how they want their teeth filed (*widji kray*, almost pointed, or *widji semong*, only a little polished), or they ask to have their teeth filed transversely till the gingival ridge, they call this *ngelav djontri*. Most of them prefer the filing of the lower edge and decide early on this operation, especially in the large cities. The young men know well that they can please the girls best under this condition.

The Tukang pangur uses a hammer, a chisel and three bricks, of which one is pointed and the other two round; two small files, one flat and fine and called *panggelus*, which is used after the bricks have done their work; a small saw and cutting nippers (*pongonghek*). Before using the instruments, the operator rubs them with arsenic and lemon juice.

The person who is to undergo an operation chews raw rice or maize, to bear the operation easier. When thus the buccal wall of the teeth are covered with a yellow color, the patient lies down on the ground, closing his eyes, and supporting his head on a small bench. The Tukang pangur, amid phantastic movements, murmurs the following formula: *djôpo, dorô, rapô*, and then commences the operation.

IV. MUTILATIONS OF TEETH BY INCRUSTATION.

These are met in Borneo, Sumatra and Mexico. In the Paris Museum are two skulls of Dayaks, from Borneo, in which these mutilations are very marked. They were described by Barnard Davis, and lately also by Mantano.

V. MUTILATIONS THROUGH ARTIFICIAL PROGNATHISM.

This variety of teeth mutilation is confined to the tribes of the right coast of the Senegal River. It was first described by Gen. Faidherbe, and later by the Drs. Brancal and Hanny. It is the

fashion among their women. The girls' upper temporary incisors are removed when they are quite young, and as soon as the others are coming out they are drawn forward, while the chin is also drawn to the fore, forming thus a projection of the teeth, which then fall over the lip outside the mouth.

The consequences of these mutilations are seen in the wounds which the skulls show in those who have been operated on. One of the most marvelous pieces of this art is the skull of a Portuguese Senegambrian woman, which is in the Paris Museum, and which shows, as a consequence of the filing of the teeth to sharp points, serious dislocation of the chin, abscess, necrose and other wounds.

VI. SUPERSTITIONS AND LEGENDS.

Teeth mutilations are found only among wild tribes. The skulls of the stone and bronze periods show no trace of teeth mutilations. With their use are closely connected, just as with the ethnical mutilation in general, religious rites, superstition and local legends.

In Indo-China and Japan, the girl, on her marriage, paints her teeth with a black varnish. However, as this operation requires time and money, it is practiced only among the prominent, or the rich class. Among the Anamites, every girl who is not a virgin, must paint her teeth black. This is the counterpart to our "fleur d'oranges."

The operations are usually accompanied with much show. The operators, though in reality no priests, assume the rôles of magicians. After the operation great festivities follow among the members of the family or the tribe, besides general prayers.

Livingstone reports, that among the Kafirs, a child whose upper teeth come out before the lower ones is looked on as a monster, and killed. Those who are lucky to escape with their lives become usually the magicians of their tribe.

On the Upper Nile, the negroes often decide to pull their upper incisors to avoid being sold as slaves, because of the loss in value brought about by this mutilation.

The same custom is found in Peru, where, according to Zarate, Gaislasso and Paw, it originated, after an expedition by the Inkas against a revolutionary people, when they had the upper centrals of the conquered pulled. It was intended as a sign of humiliation which the victor has impressed on the defeated, and this custom has continued since the conquest of the country.

VI. MUTILATIONS OF THE TEETH THROUGH CUTTING.

This mutilation consists of a transversal breaking of the crown

of the upper incisors. It is met among the Esquimaux, where they were described by Abbé Petitat, on the coasts of the Mackenzie. Its aim is, according to local traditions, to avoid the men's chin looking like that of dogs.

The operation is different from the mutilation through breaking or filing, and is accompanied by a whole series of consecutive troubles. In the practice of filing, the operators as well as those to be operated, doubtless out of fear of the consequences, often proceed by degrees and allow sufficient intervals to weaken the loss of substance. This is especially so among the Malays, where the operation is repeated after many months or years. The pain, however, must be great, as shown by those operated on.

Of course, the pain is greater the nearer the cut approaches the center of the tooth; the case is similar at the total cutting or amputation of the crown. They put, therefore, certain substances on the cutting surfaces, such as vegetable materials, which have the properties either of lessening the pain or to cauterize the exposed pulp. This helps for the moment; but there are consequences which come in later and carry with them whole series of troubles, which belong to the well-known history of alveolar perioستitis. The victim pays for his peculiar idea of incrusted teeth by very long sufferings. Yet habit and superstition are stronger than the fear of dangers and sufferings. Fashion alone is one of the mightiest motives to which all nations sacrifice their health and even their lives. Could not we cite examples, without going out of our own country, where men and especially women, in deference to tradition and fashion, bear deformities and wounds with a resignation and heroism, which have no equal, except in their pride, ignorance and credulity.

NECROSIS OF THE ALVEOLI AFTER GANGRENE OF THE PULP.

From *Journal fuer Zahnheilkunde*.

On October 15th, last year, Miss N—— came to me with a severe pain in the right lateral incisor, which had been filled with cement a few days before. The tooth was sensitive to cold and warm water and to the touch, and the gums swollen.

I removed the temporary filling, cleansed the cavity of matter, disinfected and treated with iodine, to be further treated next day. After eight days she appeared, with the face much swollen. An old lady accompanying her, said: "The thing is now much better; the face became terribly swollen the same night the patient was at your place. She suffered terribly; tried, according to advice of

doctors, cold and warm, till the pus broke its way to the surface, which gave relief."

I made some gum cuts, and allowed the pus to come out freely. The relief thus gained allowed the patient to open the mouth a little wider.

In a few days I saw the patient again, but her condition was not improved. She could open her mouth better, and I was enabled to remove the remaining root of the right bicuspid, which was involved. I also removed the incisor, and the swelling subsided. I made a temporary plate, and had no more care about the healing; but after eight weeks I was surprised to find necrotic alveolus in the place corresponding to the large right incisor, which I removed.

There can be no doubt as to the etiology of the case. The tooth should have undergone quite a different treatment.

Not much can be gained from the case for therapeutics. We are not able to insure against an eventual necrosis of the alveoli. Neither are the symptoms such that we are justified in accepting that necrosis will follow. Of course, we should guard against it, and the conscientious physician will do it in every possible way; but there are in our profession medically-unschooled men who know little of the cause of the diseases of the pulp. In despite its diseased condition, they will close the aperture, and form a microbe herd, from which gangrene and sepsis will follow. However, even at this stage, we can generally improve the condition by energetic treatment.

Dr. Salzer.

SOLID TRUTH FROM THE NEW YORK "SUN."

"For thirty years he has given at least twenty out of twenty-four hours of every day to the furthering of the business interests of the Delmonicos. He has worked himself out." It is thus that Mr. Charles Delmonico speaks of the general manager of the Delmonico restaurant, in Twenty-sixth street, who has just retired from the Delmonico service.

Now, no man should give twenty hours of every day to business or to work of any kind. If any man does, he is pretty sure to lose his health or go crazy within a very few years. Every man should sleep at least six or eight hours out of every twenty-four, and should spend some time each day with his family, or in taking recreation, or in "playing fun." We do not believe in devoting too many hours of the day or night to labor. We disapprove of the overstraining of the muscles, nerves, brains, and minds of men and women.

Items.

A good rubber heater is easily constructed by taking a shallow round tin pan and soldering a cover on it, leaving a water space of less than an inch through this top, make a round hole to which a short tin tube is soldered for the escape of steam.

It will keep your rubber warm sufficiently for packing in the flask much longer than on a disc of tin, and there is no danger of burning it either.

W. W. Davisson, Holley, N. Y.

A NEW TIN ALLOY WHICH CLINGS TO GLASS AND METALS WITH GREAT TENACITY.—An alloy of 95 parts of tin and 5 parts of copper will connect metals with glass. The alloy is prepared by pouring the copper into the molten tin, stirring with a wooden mixer, and afterward remelting. It adheres strongly to clean glass surfaces, and has nearly the same rate of expansion as glass. By adding from $\frac{1}{2}$ to 1 per cent. of lead or zinc the alloy may be rendered softer or harder, with variable fusibility. It may also be used for coating metals, imparting to them a silvery appearance.

—Phar. Record.

[Here is business for you. Nothing cheeky in this.—ED. ITEMS.]

MR G A VAWTER

Dear Sir i take my pen in hand to pen you a few lines i and wife are at E A Souths on a visit and 9 years ago you put a foole set of teeth in fore my wife they do not fit so you will have to make them over for here gums has shrunk so they need repairing i am sory to truble you but you no you warented them so we have made araigngments to be at camberiaige Saterdey next and if you neede more time to fix them that day we cane come on fridey and pay John Carkland and T Streede a vizit

The American Dental Society of Europe will hold its eighteenth meeting at Basle, Switzerland, August 1st, 2nd, and 3d. Members of the profession are cordially invited to attend. Clinics will be a special feature of this meeting. The University will place desirable rooms at the disposal of the Society, and an ingenious amphitheater, for accommodating in the immediate vicinity of the patient a larger number of spectators than are able to witness operations under the ordinary circumstances, will be loaned by the Swiss Dental Association. Programs can be had on application to the President, Dr. Byran, of Basle, or to

Chas. W. Jenkins, Secretary.

In regard to the "local anæsthetic," consisting of cocaine, carbolic acid, atropia and hydrate chloral, published in your journal at different times, I have this to say:

I have had considerable experience with it since the formula first came out. Have used it right along in my daily practice. I had a number of very badly swollen jaws, on several occasions, from its use. I then gave the subject an investigation, and think I have found the cause of the trouble. At least, I have had no further difficulty in its use since I made the change in the formula.

I now use only five grains of the carbolic acid in the prescription instead of ten.

I think this will give as good results without any of the unpleasant after-effects.

F. M. Miller, La Belle, Mo., April 26, 1892.

PRICE OF RARE METALS.—Iridium, a very heavy metal of the platinum group, so named from the iridescence of some of its solutions, and well known in connection with its use for the points of gold pens, may be bought to-day at, proximately, \$720 per pound. The present price of platinum, the better known tin white, ductile, but very infusible metal, is on a par with that of gold, namely, about \$350 per pound. But generally its value fluctuates between its more popular brothers, gold and silver. The rarest metal—and it is so rare that recent discoveries have thrown doubt on its elemental character—is didymium, and its present market price, if one may thus term the quotation of an article that never appears on the market, is \$4,500 per pound. The next costliest metal is barium, an element belonging to the alkaline earth group; its value is \$3,750. Beryllium or glucinium, a metallic substance found in the beautiful beryl, is quoted at \$3,375.

IN THE APRIL ISSUE OF THE *Cosmos* is an abstract from a paper by Dr. Crawford, entitled, "The Care of Children's Teeth," from which I quote the following:

"The care of the teeth of children is to-day the most important question that addresses itself to the American people. The almost universal presence of disease in the mouths of children is a startling fact which appeals to all who give health and hygiene any attention whatever. That human teeth in this country are becoming more susceptible to decay and other diseases is attributable more to want of function than to any other one thing, and many affections of the teeth are more virulent and rapid in the processes of destruction than they used to be. From want of functional activity the roots of teeth are tardy in their development, so that in many cases extensive decay supervenes before the apical foramen has been closed."

Monthly Gossip.

DR. WM. E. BLAKENEY.

NOTHING THAT is worth having comes easily.

PROFESSOR KOCH admits that his lymph is a failure.

HOT WATER is better than cold to apply to a bruise or sprain.

IT IS SAID that gold coin depreciates in value by use, five per cent. in sixteen years.

DR. TAFT is right in saying that "The best oxyphosphate filling is only a poor one for permanent use."

IT IS SAID that children born of neurotic parents are apt to inherit brilliant minds and very weak constitutions.

ACCORDING TO MARK TWAIN the best place to have a boil is on some other fellow, and Mark is right.

THE MANUFACTURE of false teeth for horses is a new industry just opened in France, with a capital of 2,000,000 francs.

A TICKLING IN THE THROAT can be cured by placing a pinch of dry, pulverized borax on the tongue and allowing it to slowly dissolve.

MANY EMINENT PHYSICIANS and dentists contend that irregularities of the teeth and jaws are becoming more numerous as each generation is ushered into existence.

DR. ALEX. WILSON, F. R. C. S., is of the opinion that, in the combination of nitrous oxide and ether, we have the most perfect anæsthetic agent at present available.

ACCORDING TO PROFESSOR ROQUER, in the *Wien. Med., Pr.*, 1891, and Professor Hollænder, in *Nouv.*, 1891, pental is the best anæsthetic to use in minor surgery.

AN INTERESTING PAPER, which dentists, troubled with nasal catarrh, should read carefully, appears in the April issue of the *Dental Practitioner*, entitled "Antral Abscess," by Dr. M. O. Cooley, Niagara Falls.

A DISTINGUISHED PRIMA DONNA, connected with the Hanover Court theatre, Germany, visited a dentist to have a tooth extracted. She inhaled laughing gas, and died of heart disease in the operating chair.

FLATULENT DYSPEPSIA is often greatly relieved by a mixture of equal parts of powdered sulphur, magnesia, phosphate of lime and charcoal. A teaspoonful should be taken in a glass of water.

IN PERIOSTITIS, when the pain continues for some hours after extraction, Dr. Thomas says hot fomentations are desirable. Hot water within the mouth induces a constant stimulation, and the freest evacuation in the socket.

PRESIDENT STANTON, of the Harvard Odontological Society, says, that an improper occlusion frequently causes toothache. The remedy he recommends is to "have the patient bite into modeling compound or wax, from which a model should be taken and studied."

DR. BARRETT doesn't like the new appearance of the *Dental Cosmos*, which was inaugurated to make more space. "The pages now," he says, "are crowded, dull, unreadable, vexatious—a kind of blur to all but the strongest vision."

IT IS THE OPINION OF DR. BAYARD HOLMES that every one of the acute infectious diseases can be eradicated by some sort of preventive inoculation. "Terminating injections," he thinks, "are getting the various micro-organisms which occasion diseases cornered."

"THE GRAND *climateria* in dentistry," says Dr. J. Requa, in some very interesting notes on *Early Practice*, "was just before the invention of the rubber-dam." For the life of me I cannot find the doctor's meaning in this declaration.

UNERUPTED OR IMPACTED TEETH may cause inflammation of the pulp and pericementum. "Impacted, inflamed wisdom teeth," says Dr. Briggs, "from their position, pressed down on the nerve-trunk, are very liable to give rise to severe toothache, with neuralgia, trismus and ankylosis."

WE ARE TOLD that cases of neuralgia have occurred in consequence of hypersensitiveness of the teeth, caused by a recession of the gums. By using a little nitrate of silver on the exposed parts of the teeth, the sensitiveness and the neuralgia will be immediately relieved.

MOUTH NAPKINS, old-fashioned linen, are away behind the times, says Dr. Barrett. Sterilized canton flannel may be bought for a few cents, and "a single yard," the Dr. thinks, "is sufficient to last an ordinary office for weeks, at least, and when once used should be thrown away."

A GRADUATE FROM THE ROYAL COLLEGE OF Surgeons, Dublin, has come to grief for advertising his business. On receiving his diploma, he stipulated that he would "not seek to attract business by advertising," and violated this pledge. His name was, therefore, stricken from the Dental Register because of "infamous and disgraceful conduct."

"ONE OF THE WORST cases of thumb-sucking I ever knew," says Dr. S. H. Guilford, "was that of a friend of my boyhood days. He persisted in the habit till he was about twelve years of age, and yet the form of his dental arches and the occlusion of his teeth are about as perfect as you ever find."

"YOU MUST NOT FORGET," says Dr. Charles P. Briggs, "that when it is difficult to find a cause for toothache, there is a possibility of its being a reflex expression of trouble in some other part of the body;" also, "in cerebral diseases and hysteria, a patient may complain of toothache when the teeth are in no way at fault."

DR. BEACH doesn't believe that even brushing the teeth and picking them with a tooth-pick will always insure cleanliness. "If you will take a piece of silk thread," he says, "draw it between teeth that are not taken care of, and put what comes out under the microscope, you will see thousands of little microbes kicking about;" and it does one good to see how despairingly they kick when thus exposed.

F. S. FOSTER, an English dentist, says that he was consulted in 1888, by the daughter, aged eighteen, of a chief engineer in the Royal Navy, in consequence of being unable to masticate her food. On examining her mouth, he "found ten temporary teeth, most of them badly decayed. These were all the teeth she ever had. I extracted them and supplied her with a set, which she now wears. Her hair is thin, and generally deficient."

DR. SNOW recommends the use of lower temperature in vulcanizing than is usually employed. "Rubber vulcanized," he says, "at a high temperature has a greater specific gravity than when vulcanized at a lower one; therefore shrinkage is greater, and the defects in the plate caused by shrinkage are intensified. Being molded and assuming its form at the high temperature, its contraction by cooling is greater, and the fit of the piece to the mouth impaired."

DR. LINE, of the *Odontographic Journal*, fires the following well-prepared "pellet" at an impecunious dental student:

"Young man, stand up! When a member of the faculty, a fellow student, or a friend at home, advances the balance in cash necessary to the completion of your course in college, do not forget to reimburse him, principal and interest, thanks and all, the very day you succeed in getting together the full number of dollars. You will feel better over it, as also your benefactor, and richer both of you."

The young man may obey the order to "stand up," Dr. Line, but he won't "come down."

DR. C. W. WRIGHT, of Cincinnati, went voluntarily, and, we regret to say, recklessly "on edge" during a meeting in March last, of the Mississippi Dental Society. The doctor was invited to read a paper on this occasion, and presuming that his "mental and physical condition" were equal to the great strain of such an undertaking, he accepted the invitation. The doctor recites (which is published in the *Dental Register*) his experience—when, in extreme humility and with anguish of soul, he consented to serve the society in manner indicated by its invitation to him. He says, "I accepted the invitation with a modest hyperemia of the peripheral capillaries of my face and head;" and when called on to "name the paper—The inborn product of a secretion from my cortex cerebri"—even "before I had any intimation of its sex or condition," he naturally felt that he "had to cause a paper to be born," and in view of the agonizing sensations it had occasioned him, he would name it "On edge." This, of course, is a funny name for a paper to be read before a body of scientific gentlemen; but it should be remembered that it has a funny preface, was prepared by a funny man, whose cortical cerebrum endured a vast amount of thumping, bumping and pumping to produce it. The doctor should indulge in a shower-bath often, or an incurable paresis is inevitable.

DENTAL HINTS.

In separating teeth, or cutting down fillings with sand-paper disks, first run both sides against a piece of dry soap. You will be surprised and pleased to see how nicely they will go between the teeth, and how much better they will cut the gold.

Sand-paper and emery strips treated in the same way will cut better, and never catch or tear the dam. It is also more pleasant for the patient.

In closing flasks, either by simple pressure or by boiling, use rubber dam wet with soap water instead of muslin, and you will be delighted with the result.

Broken cone socket excavators make the very best plunger points for the Snow and Lewis automatic pluggers. They just fit and the newly fractured points are better than serrations.

An infallible and simple remedy for dark points: After the case is flaked, open and remove all traces of wax, put a drop of water on the point, and with a quill tooth-pick work in a little dry plaster; after standing ten minutes pack and vulcanize. If properly done you can't have a dark point if you want one.

Geo. M. Merritt, Jersey City, N. J.

Our Question Box.

WITH REPLIES FROM OUR BEST AUTHORITIES ON DENTISTRY.

[Address all questions for this department to DR. E. N. FRANCIS, Uvalde, Texas.]

Question 19. (1) *Has celluloid any advantages over rubber? If so, name them. (2) I have seen plates, after a few months' service, turn dark and unsightly about the gums. Is this the fault of material or is it due to uncleanliness of patient?*

(1) No. (2) Fault of material. *J. R. Clayton, Shelbyville, Ind.*

(1) No. (2) If unsightly at joints, I should say they were improperly ground. If where the rubber joins the gum, it has not been properly adapted, or has been improperly finished. Any plate will become unsightly in a filthy patient's mouth.

F. P. Denny, Watertown, N. Y.

(1) I think celluloid has no advantage over rubber, but rather a disadvantage, becoming meat-like after being worn a short time. In other words, the oil comes to the surface when subjected to heat of mouth. (2) The dark appearance of rubber, especially around the necks of teeth, is wholly due to uncleanliness. *Ira B. Crissman, Chicago, Ill.*

(1) Celluloid has but one advantage over rubber. It is more easily and more cleanly worked. Practically, it is too subject to wear and tear; too bulky for upper and too light for lower plates, and also too liable to crack, scale and warp, for dental purposes. (2) Darkness and unsightliness, I think due to peculiar oral secretions and negligence together. The accumulation is external to the material and is easily scrubbed off, so far as I have seen. The exception being where pink rubber creeps from plain teeth, and the remedy is a new plate.

J. W. Green, "P.D.," Teenton, Mo.

Question 20. *Female, age sixty-five, complained of soreness over first right superior bicuspid and cuspid. The gum margin is highly inflamed and of a bright red color, while the remainder of gum is dark purple. Teeth give but slight pain when percussion is applied; gum extremely sensitive. Patient has extraordinarily good teeth, having lost but one (five years ago) next the one effected. I treated for periodontitis, faithfully using the best remedies for that disease without success. What is the trouble, and what treatment do you advise?*

I should treat for pericementitis. If this failed, I should examine as to vitality of tooth. Have known of similar cases where the tooth looked perfectly natural, but had in reality become devitalized and yielded to proper treatment for dead teeth. I have also seen similar symptoms in exostosis. Extraction is the most expedient cure *F. P. Denny.*

The trouble was probably originally caused by detached process from extracting the adjacent tooth, or from some foreign substance like calculus.

or fish-bone fragment. If not from something foreign or local, extract the tooth. If alveolus and periosteum is healthy, fill thoroughly, clip the apex a little and replant. But first of all see that you have not aggravated with too much peroxide of hydrogen.

J. W. Green.

From your diagnosis I would think patient suffering from dead or partially dead pulp, or one wanting to die, caused by thermal change. Drill into tooth affected—the one where most soreness exists. When the congested pulp is punctured, pain will subside and patient obtain relief. Apply 10 per cent. solution of hyd. chlo. cocaine; follow with application of tinct. aconite. Allow cavity to remain open for twenty-four hours, then apply arsenic to destroy pulp. If pulp is dead, inject peroxide of hydrogen into canals; follow this with eugonol.

Ira B. Crissman.

Judging from the features presented in the question, the affection is that known as phagedenic pericementitis, which may be induced by the presence of serumel calculus. Complete cleansing of the root, washing with peroxide of hydrogen, followed by a germicide and stimulant. Especial care must be used not to stretch or tear the gum at the margin. If the pocket be very deep, would cut through near the base and work through the opening. Cleanse carefully of calculi; smooth the margin of the process, leaving no abrupt bluff or angle to hold blood-clots. For full description of this perplexing disease see American System of Dental Surgery, Vol I, pp. 988 to 990—Black.

J. R. Clayton.

This is not stated with sufficient clearness to enable me to decide on the possible pathological condition of the bicuspid on general principles. As you are aware, a dark gum means inflammation of the pericementum. As the gingival border is inflamed I should infer that the membrane must be affected. You do not say whether any evidence of pyorrhea exists. Have you tried to pass a probe on buccal side of root and examined condition of cement? Should not treat for pericementitis. If there are no signs of pyorrhea I would treat the gingival border as follows: Wash with solution of mercurius chloride, and follow with a 25 per cent. solution of commercial sulphuric acid. Allow this to rest a minute or two; then follow with bicarb. soda; wash with warm water, and place in and around the margin solution of quinine in paste, quinine and water, and note results. Aristol is excellent for the same purpose, but my success with quinine favors an adherence to that. The main point is to make it aseptic and keep it so.

James Truman.

Question 21. *Which is the most natural looking pink rubber now on the market?*

The most natural looking is Gilbert Walker's granular gum facing; next, White's pink.

Ira B. Crissman.

Am not fully posted as to the different brands of pink rubber. Have used mostly the "English." None that I have seen resembles very closely the natural gums; and it is all worthless as to strength. We greatly need something better to take its place.

J. W. Greene.

Question 22. *A young man has left upper central incisor built down with gold, about a line on labial surface and two lines on the lingual. The tooth is now quite green on the labial*

surface, though sound and solid otherwise. Filling was done seven months ago—discolored soon after. Patient says canal is filled with a post. Suppose discoloration is due to post; but if so, why is not lingual surface discolored? What is the cause of discoloration?

G. B. C.

You say the above is an upper incisor, but your description applies to a lower. The discoloration may be caused by chemicals used in treatment, by the attachment of post with poor amalgam, or by improper excavation and filling of root and tooth. Remove the filling and the cause will probably be apparent. The discoloration on the labial wall being more marked than on the palatal, may be caused by a failure to excavate thoroughly that portion of tooth, or the palatal wall may be thicker, thus requiring a longer time for the penetration of discoloration. The root may contain a dead pulp. Patients are misled by careless statements, and often have erroneous ideas regarding screws, posts and dead teeth.

Question 23. *A boy of seventeen has both upper centrals broken off two-thirds up. The remaining portion of crowns are badly discolored. They were broken two years ago and a chronic abscess is connected with each root. What shall I do?*

J. A. C.

The treatment of above case depends on the experience or ability of the individual operator, and should be based on that most successful in your hands. The treatment of abscess is simple, and may be found in back numbers of ITEMS (see treatment for dead teeth in a future number). We prefer to treat abscess; seal root; bleach; then crown or fill. The teeth can be crowned with porcelain, gold, or tipped. We prefer the latter when it is nicely done. The tips can be made of porcelain with long patina pins for anchorage in cement. Send models, or grind properly shaded teeth to the form wanted, and forward to manufacturer if not prepared to bake your own crowns. You can grind down properly shaded porcelain teeth, drill holes with diamond drill for the insertion of platina pins and make quite a nice fixture, but it lacks strength and is only applicable to temporary work. Gold crowns make the most permanent attachments, but are unsightly especially where two proximate.

Question 24. *As I have listened to a good deal of argument of late in regard to an ulcer on a tooth, will you please give me an answer in ITEMS OF INTEREST? Is there such a thing as an ulcer on a tooth?*

Subscriber.

Teeth do not have ulcers. The argument undoubtedly refers to an abscess caused by the putrifaction of the pulp of a tooth, or the discharge of purulent matter through the soft tissues of the mouth.

Question 25. *I would like to know if the common alum of commerce is known both as potash alum and ammonia alum; and, if so, how a two per cent. solution can be mixed with plaster without so much bubbling and foaming.*

C. H. T.

There are a number of forms of alum, but those generally on the market are potassa and ammonia alum; usually the latter on account of its great cheapness. Experiments in this line will be reported later. We find sifting the plaster and thorough stirring the only way to remove bubbles.

A SINGULAR SURGICAL OPERATION.

Dr. B. J. Field, of Leaksville, N. C., was called on to visit a gentleman who had been suffering for some time from a tumor in his left side.

On opening his side, Dr. Field found the tumor to be closely connected with the man's heart by an artery through which the blood circulated freely. By means of a small cord, the doctor gradually stopped the circulation from the heart to the tumor, until it was completely shut off.

He then waited and carefully watched the results for half an hour, after which he again went to work, and in one and three-fourths minutes, severed the artery, took the tumor from the man, closed and sewed up his side.

The tumor was $5\frac{1}{4}$ inches in diameter, and $7\frac{1}{2}$ inches long, and, on close examination, was found to contain a perfect heart with all its valves and appliances in perfect working order. The doctor has preserved it, and will send it to New York in the near future.

It is one of the most wonderful freaks of nature on record, and the taking it out was one of the most skillful surgical operations ever performed. The man, from whom it was taken, had been unable to work for more than a year before the operation, but is now able to walk about, and the indications are that he will soon be a well man.

CLARIFYING WAX.

Collect in a basin all your old wax, and add a pint of water containing half an ounce of oxalic acid crystals. Boil slowly for half an hour and set aside to cool, giving it plenty of time. Scrape off the refuse wax underneath the cake, and if the light color from the effects of the oxalic acid is not desirable, melt it in a pan without water and stir in thoroughly a sufficient quantity of liquid butter color or some other pigment. *C. W. Berry, Milwaukee.*

Dr. C. S. Stockton, of Newark, says he has used Welch's Gold and Platina Alloy for over fifteen years.

Notices.

PENNSYLVANIA STATE DENTAL EXAMINING BOARD.

The Pennsylvania State Dental Examining Board will hold its next meeting during the session of the State Dental Society, at Cresson, Pa., commencing Wednesday, July 20th, 1892.

Persons who intend to come before the Board of Examination are requested to notify either the President or the Secretary, and to show specimens of their work.

W. E. Magill, President, Erie, Pa.

J. C. Green, Secretary, West Chester, Pa.

The twenty-eighth annual meeting of the Missouri Dental Association will be held at Clinton, Mo., July 9th. Members of the profession are cordially invited to attend.

William Conrad, Corresponding Secretary, St. Louis, Mo.

The twelfth annual meeting of the Texas Dental Association will convene at Fort Worth, Texas, the fourth Tuesday in May, 1892, and continue in session four days. The profession is cordially invited to be with us. *Charles B. Lewis, Secretary.*

At the annual meeting of the Chicago Dental Society, held Tuesday evening, April 5th, 1892, the following officers were elected for the ensuing year:

J. W. Wassell, President; Thos. L. Gilner, First Vice-President; E. A. Royce, Second Vice-President; L. L. Davis, Recording Secretary; Geo. J. Dennis, Corresponding Secretary; E. D. Swain, Treasurer; J. H. Smyzer, Librarian; G. H. Cushing, E. Noyes, J. G. Reid, Board of Directors; A. H. Peck, B. D. Wikoff, D. M. Gallis, Board of Censors.

Geo. J. Dennis, Corresponding Secretary

The annual meeting of the National Association of Dental Examiners will be held at Niagara Falls, Monday, August 1st, 1892, at 10 A.M. All State Boards are invited.

Fred. A Levy, Secretary.

The South Carolina Dental Association and the State Board of Dental Examiners will meet at Rock Hill, Tuesday, July 12th, 1892. A cordial invitation is extended to all members of the profession.

B. Rutledge, Secretary.

There will be a joint union meeting of the Pennsylvania and New Jersey State Dental Societies, held at Cresson Springs, Pa., on July 20th, 21st and 22nd.

We expect this to be one of the largest dental meetings ever held in this part of the country.

All who wish to give clinics at this meeting, which will be one of unusual interest, can communicate, during April and May, with P. K. Filbert, of Pottsville, Pa., Chairman of Clinic Committee for Pa. Society, or S. O. G. Watkins, of Montclair, N. J., Chairman of Clinic Committee for N. J. Society.

The twenty-sixth annual commencement of the Missouri Dental College, Dental Department, Washington University, was held March 10th, 1892.

Prizes were awarded as follows :

For best general examination, to Orion W. Bedell, of Ohio : The St. Louis Dental Society prize—Gold medal.

For second best examination, The J. W. Wick prize, to Everett M. Hurd, Nebraska—Twenty-five dollars in gold.

To best operator, The S. S. White Dental Manufacturing Company's prize—Set of Varney pluggers ; Orion W. Bedell, Ohio.

To second best operator, The John Rowan Dental Department prize—A No. 2 Bonwill engine mallet.

For best set of artificial teeth, The St. Louis Dental Manufacturing Company's prize—A laboratory lathe, to Joseph L. Bridgeford, Mo.

There were seventy-seven matriculates and thirty-three graduates.

A. H. Fuller, Secretary.

The thirteenth annual commencement of the Dental Department of the Vanderbilt University took place on the evening of the 24th of February. The class oration was delivered by C. J. Washington, D.D.S., of Tennessee. The faculty address was delivered by Dr. C. S. Stockton, of New Jersey. The degree of D.D.S. was conferred on seventy-one gentlemen by the Chancellor, S. C. Garland. Number of matriculates, one hundred and twenty-six.

Our Language is a sprightly little monthly, devoted to preserving, extending and improving the English speech. F. A. Fernald, 1778 Topping, New York. Price, 50 cents.

For Our Patients.

TO THE INFLUENZA GERM.

By the shivering fits which chill us,
 By the feverish heats which grill us,
 By the pains acute which fill us,
 By the aches which maul and mill us,
 By the quacks who draught and pill us,
 By the hydropaths who swill us,
 By the allopaths who bill us,
 By the nervous fears which kill us,
 Tell us, tell us, wee Bacillus,
 What, and why, and whence you are !

Say, are you a germ atomic ?
 Have you uses economic ?
 Are you truly miasmatic ?
 Are you solid or lymphatic ?
 Frankly, is your cause zymotic ?
 Are you native or exotic ?
 When your business is transacted,
 Is your stay to be protracted ?
 And do you intend, Bacillus,
 To return again and kill us ?
 Do make answer, if you please ?

Tell us briefly, tiny Mystery,
 What's your source and what's your history ;
 Clear the clouds of obfuscation
 That surround your incubation !
 Furnish, without more obstruction,
 Your belated introduction !
 Let us know your why and wherefore,
 What is it you're in the air for !
 And meanwhile, O wee Bacillus,
 Since with morbid dread you fill us,
 Prithee, take your leave at once !

—*Homeopathic News.*

THE HUMAN HAIR.

We are constantly receiving inquiries as to the best means of preserving the hair. They come at all times and from all points, far and near, from which we infer that baldness is not a local disease, except in individual instances, as in ours. Years ago, an observing physician warned us, on the shape of our head, that our top hair would take an early leave of us, and at this writing we are not

called on to brush away any stray locks that obstruct the line of vision. They have been brushed away a long time. It was only the other day that in having our hirsute border trimmed, not a word was said to us during the operation about some new discovery of an immaculate hair restorer, price \$1 a bottle, just one left, etc. Our surprise was immense. It was the only peaceful moment we had enjoyed for years under such an operation, and we could not repress our astonishment. "Why! how is this?" we exclaimed. "You've skirmished round the timber line, where you could find any excuse for exercising your shears, and we haven't heard a word from you of some infallible lotion for bald pates. Have you become indifferent to the golden opportunities of your profession? or have you been brought under the benign influence of the Salvation Army, and ceased to prey on humankind?"

We saw in the mirror before us that the Professor was in tears. A moment later he whipped off a superb wig and presented his smooth knob, as bright and shiny as a waning half-moon, sobbingly saying in broken accents, "I—I—tried it on my own head—it did bring out the hair, but never brought it back."

This then was the true solution of the diabolical mixture.

In all soberness, the more common causes of baldness are insufficient exposure of the hair to the sun and air, close, ill-ventilated hats, excessive mental work and worry, the influence of hereditary alcoholic and other excesses, constant washing, and the neglect of the use of some proper stimulant at the roots. Children should, as much as possible, do without caps; and hats, when worn, should be roomy and of a light description. During the hot season a stout hat is necessary for the prevention of sunstroke. A head covering should never be worn indoors, in trains, or in closed carriages. The kind of material employed is of importance. In summer, straw appears to be the best, on account of its lightness and permeability. In winter, hats made of light felt, well ventilated and unlined, are recommended. The ordinary tall and thick, heavy, unventilated hat cannot be too strongly condemned. Constant washing of the hair is unnecessary, as well as harmful. Once a week is quite often enough for cleanliness, as well as for maintaining the strength of the hair. The same remark applies to continual brushing, especially with hard brushes. There is a notion that greasing the hair is vulgar. After the hair has been washed, it is certainly beneficial to apply sparingly some form of simple grease or oil, otherwise it is apt to become dry and brittle. Bear in mind that every individual hair is a hollow tube whose life-essence is taken in at its roots by a purely natural process. Keep the scalp clean and mod-

erately cool and let Nature have her way. A bald-headed Indian or cow-boy would be a curiosity.

Too frequent ablutions dry and deaden the hair by removing the natural oil. One washing a week is enough, and after the hair is dry it should be well brushed, but never with a very stiff brush, or one with metallic bristles. About once in two months the ends of the hairs should be clipped to prevent their splitting and to promote growth. Under no ordinary circumstances should a fine comb touch a child's head. Dandruff may be brushed out and washed out, but the fine comb, by irritating the scalp, produces the evil it is employed to remove. Even for the sake of beauty, hot curling irons should not be used for a child's hair. If it will not curl naturally, or with a little gentle coaxing, cut it short.

—*Ed. Homeopathic News.*

PROFESSOR STONES' DISCOVERY.

To the intelligent reader we do not need to introduce Professor Stone, of Boston. For the last twenty years Professor Stone has been known as an active and authoritative worker in the field of science. To him more than to anybody else do we owe our knowledge of the fossil foot-prints of the rocks of Northern Rhode Island, and his work on "Certain Resemblances Between the Prehistoric Races of Ohio and the Present Inhabitants of Labrador, with Thoughts on the Immutability of Human Varieties," is the highest authority on the subject. Nor has the Professor entirely neglected more popular forms of research, as his work on "Food Adulterations, with Hints for Their Prevention," attests. Indeed, our object in referring to the Professor to-day is to speak of a recent discovery of every-day interest to the thousands of people in this country; and, though there was one slight error in the conclusions drawn by him, our confidence in his scientific ability is strengthened rather than weakened.

A few weeks ago, Professor Stone was called to Marlton, Ind., by the sickness of an aunt. He remained in the place several days, and naturally his scientific mind was active. It is as impossible for a trained scientist to refrain from observing and drawing conclusions, as it is for a duck to keep from swimming when adjusted in the water. The practical scientist has not the penetration of the Englishman who can sail along the Atlantic coast in his yacht and then write a book on "Social Life in Utah," but he nevertheless can see an infinite variety of things which are as a sealed book to the ordinary person. Professor Stone had not been in Marlton twenty-four hours before he noted a marked absence of natural

teeth among the men of the place. Perhaps half of the men in Marltown—certainly over half of the young men—had no teeth at all except false ones, and the other men all had lost from one to a dozen of their original teeth. Like a true scientist, the Professor first carefully collected and tabulated his facts. He found that there should be a grand total of 62,000 natural teeth in the mouths of the Marltown men, but he could find only 15,500, making the startling deficiency of 46,500. Every effect must have a cause—there is nothing dearer to the scientific heart than this. Professor Stone looked around for the cause of this remarkable tooth disappearance. Again, like a true scientist, he asked no questions but proceeded to evolve the cause from the ascertained facts bearing on the effect. He soon became convinced that the use of natural gas in the houses was responsible for the rapid decay of teeth in Marltown. No sooner had he settled this in his mind than, again like a true scientist, he proceeded to give his discovery to the world. In a long and scholarly article in *The Boston Science Monthly*, he presented his facts and explained the evident cause. He denounced natural gas in unmeasured terms, and predicted that, unless its use was stopped, the time when men would become permanently toothless would be much hastened. The Professor's able paper provoked much comment in scientific circles, and it was just becoming agreed a few days ago that the use of natural gas must cease, when an unscientific person from Toledo, was heard from.

This unscientific individual, of course, went at his investigation in a very unscientific manner. We need not give his crude researches more space than to say that he ascertained that two years ago a handsome, black-eyed, curly-headed, dimpled-cheeked young lady dentist from Chicago opened an office in Marltown, and that since then the men of the place have not done much but get their teeth pulled. These being the hard facts in the case, the ingenious and strictly scientific theory of Professor Stone must, in the words of the political economist, "fall to the ground," and scientists lose interest in it. But it still retains its interest for other people. If the young lady dentist is responsible for the fall of the masculine Marltown tooth, shall not the young lady dentist be prohibited? She is being turned out in increasing numbers each year by the colleges, and there is no reason why she may not spread and become common everywhere. Nor is there any reason to suspect that the Marltown men are any different from other men, therefore the coming of the young lady dentist apparently means the going of the male tooth, and something ought to be done about it.

—*New York Tribune.*

Current Notes.

In the recently published "Systematic Mineralogy," by the late Dr. Thomas Sterry Hunt, appear the new spellings, "chlorid," "sulphid," "phosphid," etc., also "oxyd."

It is popularly supposed that aluminum is the lightest of metals, but this is not the case. Magnesium is one-third lighter, and is harder, tougher and denser. Till recently it was cheaper than aluminum. It is less affected by alkalies than the other metal, and takes a high polish.

Special Treasury agents seized a day or two ago in Chicago over 5000 sets of artificial teeth that had been smuggled in from Germany by a woman dentist. She bit off more than she could chew.

Dr. John Allen, originator of porcelain plates, is dead, at the age of 82. For half a century he had been a bright light in the dental profession. He was always genial, helpful and paternal toward every young practitioner, continually taking progressive steps in every department of work, and prominent and useful in dental associations.

Several dentists have written us lately of having extracted three rooted lower molars. Such teeth are novelties, and yet are found by almost every dentist of long practice.

So of teeth attached by an abnormal growth of cement. Both are freaks of nature. Yet it is well to note them, for there are many whose attention has never been drawn to these abnormalities.

Dr. Richards, of Georgia, has been using the Clark deposit-plate, having inserted probably seventy-five of them, with success, as they fit accurately. The only possible objection is that the gold may rub off, but he overcomes this by paying a little extra for extra gold deposit, which makes it very nice. Some three or four have broken, but in these the fault was his own, not that of the plate.

Facetious old gent (showing a false set of teeth to his granddaughter): "There, dear, I told you, when you next honored me with a call, I'd show you my new set of dining-room furniture."

Try to please your patients, but more to please yourself, and still more, to please your conscience. The dentist who does wrong to please his patients or himself, wrongs his business, blunts his conscience, and finally forfeits his position, his honor, and his business.

Circumstances make most men; some make circumstances. The former are servants, the latter masters. The one is passive, the other aggressive. One class is swayed by every breeze of popular sentiment and clamor and vice; the other makes sentiment, defies clamor, and is strong enough to live above the low strata of vice about him.

Shall we be servants to the public, bowing to their demands, lowering ourselves to their level and accepting their standard of wages? Or shall we be masters of our situation, standing erect in the dignity of our professional dignity, and making our own standard of compensation? There are the two classes, and our choice depends largely on our will and skill.

"LOCAL ANÆSTHESIA, sufficient for minor surgical operations," says Dr. C. Schleich, in *Les Nouveaux Remèdes*, "can be obtained by using a spray of ether in liquid vaseline (4 to 1), followed by hypodermic injections of pure sterilized water. The needle is introduced first in the usual way, below the surface of the skin and then parallel to it, forming at the point of injection an œdema of the skin. In the extent of this œdema the skin is absolutely insensible." The doctor experimented on himself and his assistant with this anæsthetic, and speaks encouragingly of its value in minor surgical operations.

It is well known that a smooth disc of steel driven at a high speed will cut into a file held to the edge of the disc. The principle does not seem to have been practically used, save in one instance named by Mr. Richards, the well-known engineer, who states that it was employed in the United States armory at Springfield, in preparing a tenon, or reduced section, on the ends of tempered steel ramrods, such as were used in loading the muskets of twenty-five years ago. The material was hard and could not be cut, so small wheels of iron, about six inches in diameter and one inch thick, were used. They were driven at six thousand revolution per minute, and melted or abraided the metal away instantly, at the same time drawing the temper, so that a screw thread could afterward be cut on the end of the tempered rod.

Editorial.

DR. J. S. JENKINS, OF LIMA, PERU.

No one in the dental profession on the west coast of South America, is so well known and universally esteemed as Dr. J. S. Jenkins, of Lima, Peru, whose portrait appears in this issue of the *ITEMS OF INTEREST*, and who celebrated his seventy-third birthday on May 16th. His striking appearance and wonderful activity for one of his age, and his almost unprecedented record of continued practice in South America, excite great interest in the American traveler on this coast, while his generosity is sure to cement a friendship, once established.

The doctor was born in Baltimore, May 16th, 1819, being thereby eight days older than Queen Victoria. After extensive travels in the United States, moving from city to city, he went to Havana, Cuba, where he took up the study of dentistry with a Dr. Johnson, in his twenty-first year.

From Havana he went to New Orleans where he entered the employ of Dr. Levi S. Parmly, who at that time was the leading dentist there, and the first and most famous of the descendants of that name, who have been bright lights in the dental profession during a half century. Here his native genius was first kindled to activity, under the steady guidance of a superior master.

It is very amusing to hear the venerable doctor tell of the many eccentricities of his preceptor. Dr. Parmly was well along in years and had accumulated a fortune of half a million of dollars, yet his "closeness" in money matters seemed to increase with his years. However, his knowledge and skill outshone this blemish in his character, and he always held his practice.

Dr. Jenkins' passion for traveling soon induced him to forsake New Orleans, and we find him consecutively practicing a few years in California, Yucatan, Mexico, Central America, till 1854, when he came to Lima, Peru. It seems that his restless spirit has at last found a permanent abode, though since he has become established here he has been constantly planning a visit to the United States, which he has never yet carried out.

The doctor is regarded as a master in the mechanical art, and his laboratory is an old curiosity shop of implements that he has designed during his early isolation from other dentists. His genius has spurred him on, though he has been careless in not protecting his inventions by patents. The writer noted four distinct systems of automatic mallets of most attractive and effective design. The doctor picked up one with an affectionate touch, and remarked :

“ I have always been intending to take out patents on it in the States.”

“ When did you invent it, doctor ? ” I inquired.

“ Well, about twenty-two years ago now,” was the reply.

As his photo shows, the doctor is a man of noble appearance, being of a fine, commanding physique, with snow-white hair and beard, the latter measuring thirty-two inches in length. His eyes are bright, his step elastic, his grip strong. Every day finds him steadily at his chair after 12 M.

But Dr. Jenkins is not so much engrossed in his profession as to exclude proper consideration for home and the friendly circle. He is the recognized champion of his club, and spends several hours each day with his cue.

I have often remarked to the doctor that he would be a prize to a dental convention, for he is a fluent and graphic speaker, and it is our hope that he will yet effect his long premeditated trip to the States, where he will find many friends to welcome him among those who have received a kind word of help and advice when stopping at this city on their way to more distant fields to seek their fortunes.

R. W. E., Lima, March 22nd, 1892.

Let us remember we are responsible not only for the intrinsic character of our habits, but also for their tendency and example. If, for instance, you decide smoking a few cigarettes is not a bad habit, you must also decide that the tendency of the habit is not to smoke more in the near future, and that by and by it may not demand something stronger; and though you may not go to what you call excess, are you sure your example may not cause others to do so ?

HAVE WE TWO STANDARDS OF MORALS?

Why should there be two standards of morals and social propriety and refinement,—one for the girls and another for the boys; one for young ladies and another for young gentlemen; one for the wife and another for the husband? And yet some of the sterner sort act as though their standard was, of course, lower than the standard they hold up for the gentler sex. The foolish boy struts about smoking his poisonous cigarette, as though this made him a gentleman! But what would he think if his sister did the same thing? When a little older, he thinks his standing in society is promoted by making a chimney of his nose, over a big cigar! But would he be pleased if his sweetheart did the same? When his ladylove becomes his wife, and the honeymoon is passed, he brings out his old pipe, gets out of her society, and turns himself into a smoke-house, and by and by brings the smoke-house into the parlor! What house would be large enough to hold them both if the wife did the same?

As a member of a social party, I was once going up the majestic Mississippi, in the good old days when palace steamers plowed its clear water. After supper we all went on the upper deck to socially enjoy the beautiful evening. Soon one of the young gentlemen passed around a case of cigars. As he handed it to me, instead of taking a cigar, I passed the case over to the ladies, saying :

“I hope you will take no offense, ladies, but I hardly like to smoke unless you will join us?”

But they did take offense, and could hardly believe I was in earnest. Passing them back to the young man, I said :

“Thank you kindly for your generosity, but really I cannot indulge in what these ladies judge so unbecoming that they will not join us in doing.”

Finally, all agreed we would dispense with smoking. It led, however, to quite an animated, and, I hope, a profitable discussion.

The question was, Should there be the same standard in ethics and morals for both gentlemen and ladies?

WHAT MILL WERE YOU GROUND IN?

Yes, there are men, many, who lose their individuality in their school life. They come out so completely the representatives of their teachers, that they are no longer men—free-thinking, independent, broad-minded men—they are the miller's grist. The love for original investigations are crushed out of them, and the impulse to learn something for themselves, something others do not know, or even to maintain their individual characteristics, is gone. Their ambition is only to retain what they have been taught. They have taken notes, and now for their application; they have imbibed theories, and now for the opportunity to work them out. What they have heard has been the wisdom of oracles, and they have, therefore, received it as undisputed truth, and they walk forth with it as that which confers on them professional dignity, superior intelligence, and a claim on the community for honor, place and emoluments. When they entered the college they were told to divest themselves of all predilections, prejudices and bias, and they did so. When they came out they were clothed with a parchment, and they were told to put it before them as an apron to hide their nakedness. They had better have put their own clothes on, and have put the parchment in their pocket, but they assumed it big enough to cover their whole individuality—ignorance, inexperience, blunders, and all.

These schools are important, but we must be careful to have them add to what we have, not to rob us of what we are. They are helps, not creators; they are to make us more ourselves, not less; better prepared for close thinking, broad reasoning, and correct judging. Our colleges are not to finish our education, but to begin it; only to lay the foundation for skill, wisdom and growth. Better, by far, hide your diploma, than to have your diploma hide you. Better, by far, never to have seen a college than to have it destroy your identity. Thank your professors for their teaching, but don't let them cut your coat tail to match their own, and, still worse, to so thoroughly grind you up as to make grist of you.

OUR POST OFFICE DEPARTMENT.

The main points of improvements John Wanamaker has aimed at in his administration of the Post-office Department have been: First, penny postage; second, the unification of third and fourth-class matter, to the end that much confusion and great annoyance to the public and the clerical force of the department may be avoided by and through the division of all mailable matter into two classes, and subject to two rates only; third, his postal telegraph scheme, which was defeated in committee at the last session of Congress, and, fourth, the establishment of a system of postal savings banks, modeled, but modified as circumstances might suggest, on the English plan, which has been so fruitful of good results in the way of encouraging saving among the wage-earners of Great Britain.

As a business man, he advocated these schemes before he was appointed Postmaster-General, and it was, perhaps, principally because of his broad, commercial and economical views that he was chosen. But it is one thing for a Cabinet officer to have reformatory views of the management of his department, and quite another to be able to carry them out. More than the head of any other department, Mr. Wanamaker has to depend on the enterprise, intelligence and faith in the country, and of the two houses of Congress. These bodies move slowly, excepting in spending and appropriating large amounts of money in other directions.

Still, there is progress, and we may well hope that another Congress, if not this, will order the carrying into effect at least a part of these schemes.

Great stress is laid on the supposition that if meat and vegetables are allowed to remain on and between the teeth, fermentation and acidity will result, and thence caries. This is indiscriminating. Vegetable food produces acid and fermentation, and especially fruits; but animal food produces alkali and rot; and when fermentation becomes putrid it is no longer acid, but alkaline. There is little stench in fermentation, but much in rottenness. Even in the active fermentation of fruit and vegetables, if meat is added fermentation ceases.